

Supreme Court, U. S.
FILED

JUN 10 1978

MICHAEL ROBAK, JR., CLERK

APPENDIX

IN THE

Supreme Court of the United States

OCTOBER TERM, 1977

No. 77-968

DETROIT EDISON COMPANY, *Petitioner*,

v.

NATIONAL LABOR RELATIONS BOARD, *Respondent*.

ON CERTIORARI TO THE UNITED STATES
COURT OF APPEALS FOR THE SIXTH CIRCUIT

PETITION FOR WRIT OF CERTIORARI FILED JANUARY 4, 1978
CERTIORARI GRANTED MARCH 27, 1978

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Docket Entries

UNITED STATES OF AMERICA
BEFORE THE NATIONAL LABOR RELATIONS BOARD
DIVISION OF JUDGES
WASHINGTON, D.C.

Case No. 7-CA-10276(2)

THE DETROIT EDISON COMPANY, *Respondent*
and

LOCAL 223, UTILITY WORKERS UNION OF AMERICA, AFL-CIO,
Charging Party

- 4.4.74 Charge filed
- 8.8.74 Complaint and Notice of Hearing, dated
- 8.16.74 Answer of Respondent the Detroit Edison Company, dated
- 9.17.74 Order Denying Request for Postponement, dated
- 9.23.74 Hearing opened
- 9.23.74 Hearing closed
- 1.29.75 Administrative Law Judge's Decision, dated
- 2.21.75 Respondent's Exceptions To Administrative Law Judge's Decision, dated
- 6.30.75 Board's Decision and Order, dated
- 7.18.75 Respondent's Request For Reconsideration, dated
- 7.24.75 Order Denying Motion, dated
- 8.10.77 Decision of the Court of Appeals, dated
- 10.27.77 Petition for Rehearing, filed
- 11.22.77 Denial of Petition for Rehearing, dated

The following judgments and opinions are located at the following places in the Appendix to the petitioner's petition for a writ of certiorari:

- a. Decision dated August 10, 1977, by the Sixth Circuit Court of Appeals, App., p. 1a-12a.
- b. Denial of petition for rehearing by Sixth Circuit dated November 22, 1977. App., p. 13a.
- c. Decision of NLRB dated June 30, 1975. App., p. 14a-17a.
- d. Decision of Administrative Law Judge dated January 29, 1975. App., p. 18a-59a.
- e. Arbitration opinion and award dated December 3, 1973. App., p. 60a-76a.
- f. Arbitration opinion and award dated October 23, 1974. App., p. 77a-87a.

[1] BEFORE THE NATIONAL LABOR RELATIONS BOARD
SEVENTH REGION

Case No. 7-CA-10276(2)

In the Matter of:
THE DETROIT EDISON COMPANY, Respondent
and

LOCAL 223, UTILITY WORKERS UNION OF AMERICA, AFL-CIO,
Charging Party

418 Book Building
Detroit, Michigan
Monday, September 23, 1974

Pursuant to notice, the above-entitled matter came on for hearing at 10:30 o'clock a.m.

BEFORE:

Honorable SIDNEY J. BARBAN, Administrative Law Judge

APPEARANCES:

MR. JOHN A. CIARAMITARO, National Labor Relations Board, Seventh Region, 500 Book Building, Detroit, Michigan 48226; appearing as Counsel for the General Counsel.

MR. RALPH H. HOUGHTON, Jr., Fischer, Franklin and Ford, 1700 Guardian Building, Detroit, Michigan 48226; appearing on behalf of the Respondent.

[2] APPEARANCES (Continued):

MR. CLEMENT J. LEWIS, Utility Workers Union of America, AFL-CIO, Suite 605, 815 16th St., N.W., Washington, D.C., 20006; appearing on behalf of the Charging Party.

[3]

WITNESS

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[6] MR. HOUGHTON: Your honor, as you have probably noted in a brief perusal of the formal documents, the case involves an issue as to whether or not the Edison Company has violated the Act by refusing to disclose certain information to the union, regarding psychological aptitude testing.

I think most of the facts in this case will be agreed to and I don't see any dispute in that area. We'll be looking primarily at the issue and whether or not the union in this particular has a justification for receiving this information.

Without detailing all of the facts, I would like to just review the three points or pieces of information I think the union desires to obtain, and advise you as to the company's position.

The job that we're talking about here is an instrument man job in the powerplant. A psychological aptitude test battery, consisting of two tests, was used in conjunction with selecting applicants to fill vacancies in the instrument man job. In order to be considered and fill that job, you must have received an acceptable score on the psychological aptitude test battery. The test itself consists of two tests—that is the battery consists of two tests—the EPSAT and the Minnesota [7] Form Board test, two psychological aptitude tests that were given to all the applicants.

The union has requested basically two pieces of information. They have asked that the company turn over the tests themselves, the actual tests that are used. The company has declined to do that.

The company has provided the union with various sample types of questions that are found on these tests, but has taken the position that the tests themselves are confidential. And secondly, to disclose them to the public, would infringe upon the future validity of the tests as they are used in future testing programs.

The company has offered to do two things to appease the union in this case. One, our position is we would be willing to disclose these tests to a qualified industrial psychologist for his perusal, for a determination on behalf of the union. We have also indicated to Mr. Lewis, the spokesman for the union, that we would permit him to take the test himself. But we feel we cannot, in fairness to the validity of the tests and our position, disclose the actual test itself.

Two other pieces of information the union desires are the answers, that is what we would think of as the answer

sheets for individuals that have taken the test, and also the actual scores obtained by individual employees.

We have declined to disclose those pieces of information [8] unless we have the employee's consent. We have agreed to furnish all that information to the union with the employee's consent. Our position, again, has been that when the employees took the test they were advised that the results of their scores would be kept confidential unless the employee agreed to have them released. If the employee agrees to have them released, we have no objection to furnishing that information to the union.

Now, it's within this framework that we confine ourselves here today, before you, on the central issue, and that is whether or not the company should be required to disclose the actual tests themselves to the union. Thank you.

• • •

[12]

CLEM LEWIS

a witness called by and on behalf of the General Counsel, being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

JUDGE BARBAN: Be seated, please.

Q. (By Mr. Ciaramitaro) Mr. Lewis, would you state your full name and address for the record? A. My name is Clem Lewis, my address is 815 16th Street, N.W., Room 605, Washington, D.C. 20006.

Q. Mr. Lewis, by whom are you presently employed? A. I work for the Utility Workers Union of America, AFL-CIO.

Q. And how long have you been employed by Utility Workers? A. More than twenty-five years.

Q. What is your current position with the Utility Workers Union? A. My title is Director of Services for the National Union.

Q. And how long have you had that position? A. Since 1970.

Q. And could you very briefly describe what your duties are as director of services? A. Yes, I'm in charge of research, education, arbitration [13] services, aids to negotiations to our various unions throughout the country, and matters of that kind.

Q. Now I direct your attention to January of 1972. Did your union have a then current collective bargaining agreement with Detroit Edison Company, covering its Monroe Powerplant? A. We did.

Q. I show you what has been marked for identification as General Counsel's Exhibit 2 and ask you whether or not that's the agreement to which you have referred?

(The document above referred to was marked General Counsel's Exhibit No. 2 for identification.)

A. This is the agreement.

MR. CIARAMITARO: I now move its introduction into evidence.

MR. HOUGHTON: No objection.

JUDGE BARBAN: Hearing no objections, General Counsel's Exhibit No. 2 is received.

(The document heretofore marked as General Counsel's Exhibit No. 2 for identification was thereupon received in evidence.)

Q. (By Mr. Ciaramitato) Now, Mr. Lewis, does that contract contain what can be referred to as a criteria for promotion clause? A. It does.

Q. Is that clause Article Eight, Section thirty-eight? A. Yes. There are two clauses on promotions, but the one [14] you refer to is correct. A-thirty eight, and there is another one called Seven Article VII, 13, on page thirty.

Q. Okay, thank you, Mr. Lewis. Now directing your attention to January 13, 1972, a grievance referred to as PMO 123, did it arise under that contract? A. Yes, it did.

Q. Have you seen a copy of that grievance? A. Yes, I did.

(The document above referred to was marked General Counsel's Exhibit No. 3 for identification.)

Q. I show you what has been marked for identification as General Counsel's Exhibit No. 3 and ask you is that what —the document you just referred to? A. Yes, this is a copy of it.

MR. CIARAMITARO: Your honor, I now move that it be introduced into evidence, except for the handwritten writing at the bottom of that page, which reads: "Not anyone, rec, r-e-c-, with a vertical line". And then the "Mr. Wiley, old test. Did they". That is not offered. Just offering for the basic grievance itself.

MR. HOUGHTON: We have no objection, with the understanding as counsel discussed before on the record, that we will introduce the entire grievance procedure and arbitration.

JUDGE BARBAN: Hearing no objection to General Counsel's Exhibit No. 3, it is received.

[15] (The document heretofore marked as General Counsel's Exhibit No. 3 for identification was thereupon received in evidence.)

Q. (By Mr. Ciaramitato) Now, Mr. Lewis, was that grievance, to your knowledge, processed beyond just the filing of that grievance? A. Yes, it was.

Q. Did you, yourself, become involved in the processing of that grievance? A. Yes, I did.

Q. Did you get involved in the early stages or the later stages of the process? A. The latter stages.

* * *

[16] Q. (By Mr. Ciaramitato) Referring to the grievance PMO-123, did that grievance ever go to arbitration? A. Yes, it did.

Q. And was an arbitration hearing held? A. Yes sir, it was.

Q. Do you recall the dates on which that arbitration hearing was held? A. It took several dates.

Q. So that you might not have to refer to your notes, may we propose a stipulation, Mr. Houghton, that the arbitration hearing was held on the following dates:

MR. HOUGHTON: Yes.

MR. CIARAMITATO: May 23, May 24, May 30 and May 31, all in the calendar year of 1973.

MR. HOUGHTON: That's correct, with the additional understanding of the continuation of the hearing, which was conducted on July 18, 1974.

MR. CIARAMITATO: Yes, with that understanding.

MR. HOUGHTON: Certainly, I so stipulate.

Q. (By Mr. Ciaramitato) Mr. Lewis, prior to that arbitration hearing, did you, on behalf of your union, make any request of the Detroit Edison Company for information in relationship to [17] that PMO-123 grievance? A. Yes, I did.

Q. Were these requests for information made in writing? A. Yes, they were.

Q. Were they also made verbally? A. Yes, they were.

Q. These written and verbal requests were made at different times, is that right? A. Yes, sir, several times.

Q. Now the first request for information that was made, was that made in writing or was that verbally? Do you recall? A. In writing.

Q. Now, Mr. Lewis, I show you a letter dated March 5, 1973, which is marked for identification as General Counsel's Exhibit No. 4. Is that the letter that you refer to as your first written request?

(The document above referred to was marked General Counsel's Exhibit No. 4 for identification.)

A. Yes, this is my first written request.

Q. First request of any sort, written or verbal, is that right? A. That's correct.

MR. CIARAMITATO: I now offer into evidence, except for the language, the written language at the top, the word "copy", which is circled.

[18] MR. HOUGHTON: No objection.

JUDGE BARBAN: Hearing no objection, General Counsel's 4 is received.

(The document heretofore marked as General Counsel's Exhibit No. 4 for identification was thereupon received in evidence.)

Q. (By Mr. Ciaramitato) Now after you made that written request, Mr. Lewis, did you receive any written replies to that request? Referring to a written reply. A. Written reply—yes, I guess I was asked to come to a meeting at the Detroit Edison office and meet with the director of union relations and the company counsel to see if we could come to a meeting of the minds or something.

Q. Now I'm not asking about, are you saying that the letter to which you've referred asked you to come to some meeting? A. Yes, I believe it did.

Q. Is that what you indicated? A. I'm trying to recollect exactly.

Q. I show you, Mr. Lewis, what has been marked for identification as General Counsel's Exhibit No. 5. It's a letter dated March 15, 1973. Is this the reply letter to which you've just referred?

(The document above referred to was marked General Counsel's Exhibit No. 5 for identification.)

A. May I see my request?

[19] Q. Your March fifth letter, I show you GC-4. A. Yes.

Q. I now move its introduction into evidence.

MR. HOUGHTON: No objection.

MR. CIARAMITARO: I'd also like it to be noted that the letter is a letter going from Mr. Houghton, himself, to Mr. Lewis.

Q. (By Mr. Ciaramitato) Now, Mr. Lewis—

JUDGE BARBAN: Just a moment. General Counsel's Exhibit No. 5 is received.

(The document heretofore marked as General Counsel's Exhibit No. 5 for identification was thereupon received in evidence.)

JUDGE BARBAN: Go ahead.

Q. (By Mr. Ciaramitato) Now, Mr. Lewis, the letter, in its first paragraph, refers to a telephone conversation from March thirteenth, is that right? A. Yes.

Q. Is that what you recall, can you relate—that was a telephone conversation with Mr. Houghton, is that right? A. Right.

Q. Now, could you relate that conversation as best you recall? A. Well, I think he made it quite clear to me that that company couldn't give me the actual tests, test batteries and the scores for each of the individual candidates, and things like that, for the reasons given in his opening statement—[20] confidentiality and other things. But that if I could come over to the office, maybe something could be worked out. And he says, as long as you're going to be here on this date, we'll meet on this date, or some such thing as that.

Q. Okay, that was basically the essence of your telephone conversation? A. Right.

Q. Then this letter followed? A. Right.

Q. And the letter refers to arranging a meeting for Monday, April 2, 1973. Was the meeting, in fact, held on April 2, 1973? A. Yes, it was.

Q. Where was that meeting held? A. At the Detroit Edison offices right here in Detroit.

Q. Do you recall what time of day that meeting was held? A. I believe it was two o'clock, on time.

Q. And were persons representing both the company and the union in attendance at this meeting? A. Just myself for the union and the company had a couple of people there.

Q. Do you recall who they were? A. Yes, I think Mr. Houghton was there. I believe Mr. Roskind, who's sitting here; and the director of union relations, Mr. Ruch. I'm not sure about Mr. Roskind, he might have been, he might not.

[21] Q. Now, as best you can recall, can you relate what happened, what was said by whom, at that meeting? A. Yes. Again, the company restated its position that they could not give me the actual test batteries, they couldn't give me the individual scores, they couldn't give me individual's names attached to individual scores, they couldn't give me the actual tests. But they did give me a sort of a study or validation or what you might call a justification for the type of tests that they were using for these instrument people. And it was a sort of a survey they'd made or it was a report they got from a consultant, I believe, from somewhere else, which kind or justified the type of test they were using.

Q. So they gave you some things, is that right? A. Yes.

Q. Did they give you any of those items that you had requested? A. No.

MR. HOUGHTON: Excuse me, are you referring, by request, to the request of March?

THE WITNESS: I believe I asked for something about validation in that letter, and the report by the National Compliance Company, is that what you mean?

MR. CIARAMITARO: You mean that report?

THE WITNESS: Let me—they gave me nothing for the individuals, nothing for the actual test batteries, nothing for grading, no scoring. They gave me a report by the, I believe [22] was the National Compliance Company. And they gave me some kind of a survey they had made of their own psychologist, sort of justifying the type of test they were using. Now whether that was a strict validation or not, I don't believe it was. I think it was a study they had done by themselves. They were updating the test they were using for instrument man or some such thing.

Q. (By Mr. Ciaramitaro) So it may have partially complied with your request? A. All right, yes.

Q. We stipulated to the various dates of the arbitration meetings, the last one being May 31, 1973. After that arbitration hearing closed, were there other times when you reiterated your requests for information concerning the grievance PMO-123? A. Yes, several times.

Q. And did those take the form of written requests? A. At the outset of the arbitration, the first morning of the arbitration, I served on the arbitrator a request that he order the tests or subpoena the tests or whatever he could do, and subpoena these scores so that I would be in a better position to argue this case.

Q. That written request, did you give the company representatives at the arbitration hearings a copy of that request? A. I did.

Q. And did the company representatives at that hearing take [23] any position with respect to your request? A. The same position they had previously taken, that they could not involve the actual tests and the actual scores. They could put names alongside of specific scores. And they went through the same argument about this was a test done

by their psychologist and they were going to use it and so forth.

Q. Were you present during all the days of the arbitration hearings? A. Yes, I was.

Q. To your recollection, were the actual tests that you were seeking, were they ever even given just to the arbitrator? A. No, they were not.

Q. The test papers that you were seeking, were they ever just given to the arbitrator? A. No, they were not.

Q. The test scores by each individual named, to your knowledge, were they ever given to the arbitrator? A. No, they were not.

Q. Not even the arbitrator got that information? A. That's correct.

Q. Did the arbitrator ever direct the production of those items? A. No. He gave some opinions.

Q. I'm not asking you about his opinions, I'm asking you were they ever directed. [24] A. He answered that he didn't think, under state law, state arbitration law, I take it, that he could compel the company to supply the information. So he could not meet with my request to order the tests, and order the scores or subpoena the tests or subpoena the scores or whatever, he did not have the authority in the state law.

MR. HOUGHTON: Excuse me for interrupting, counsel, just to keep the chronology straight, could we introduce a copy of that written request?

MR. CIARAMITARO: May twenty-third?

MR. HOUGHTON: Yes.

MR. CIARAMITARO: Do you have copies?

MR. HOUGHTON: Yes, I do.

(The document above referred to was marked General Counsel's Exhibit No. 6 for identification.)

Q. (By Mr. Ciaramitato) I guess we can stipulate. Mr. Lewis, I show you what's been marked for identification as General Counsel's Exhibit No. 6. And is this the written request to the arbitrator to which you just referred? A. That is correct.

MR. CIARAMITATO: I now move its introduction into evidence.

MR. HOUGHTON: No objection.

JUDGE BARBAN: General Counsel's Exhibit 6 is received.

(The document heretofore marked as General Counsel's Exhibit No. 6 for identification was thereupon received in evidence.)

[25] Q. (By Mr. Ciaramitato) I believe you indicated that after the hearing closed, the arbitration hearing, even after, you made written requests of the company for this information, is that right? A. After the arbitration closed?

Q. After May 31, 1973, or requests that referred to your prior requests? A. Yes. After the arbitration had closed, the arbitrator asked the parties to submit briefs. This is usual in most cases. And we then got into a number of situations where I said, now I don't know how to proceed on the case before the Labor Board, asking for disclosure, and if I got that disclosure my brief would be one way. If I didn't get that disclosure, my brief might have to be another way. So we had to write ground rules, if you please, on how we would write the briefs. I wanted to protect my interests at the Labor Board. So the Labor Board hadn't acted on this case too quickly. I took about a whole year, but finally Mr. Houghton, who's here, and myself, he was the advocate for the company and I was the advocate for the union at the arbitration—we got down to some general ground rules on the writing of the briefs and among the ground rules was that—look, if you've got disclosure from the Labor Board and this type of disclosure is such that it

gives you new argument or new food for argument, the case can be entirely reopened. That was a stipulation we arrived at when we submitted our briefs [26] to the arbitrator. But we kept arguing this case about disclosure all the way through, yes.

MR. CIARAMITATO: Your honor, I think I may be able to very quickly go over these things via the offer into evidence the various stipulated documents which are basically letters and the written agreements to which Mr. Lewis has just referred.

Your honor, I think I am now prepared to propose a stipulation—stipulate the introduction of various documents. And they are as follows:

Stipulated exhibit GC-7 is a letter dated June 2, 1973, from Mr. Lewis to Mr. Houghton. I'm offering all of that document except the non-typed writing at the top, which reads "In re: Detroit Edison Company" and the bracket on the left column of that exhibit.

(The document above referred to was marked as General Counsel's Exhibit No. 7 for identification.)

MR. HOUGHTON: No objection.

JUDGE BARBAN: This is General Counsel's Exhibit 7, it's received.

(The document heretofore marked as General Counsel's Exhibit No. 7 for identification was thereupon received in evidence.)

MR. CIARAMITATO: Then there is GC-8, a letter, with attachments, and there are three pages of attachments, dated July 10, 1973, from Mr. Houghton to Mr. Lewis, which makes re- [27] ference to the June 2 letter.

(The document above referred to was marked General Counsel's Exhibit No. 8 for identification.)

MR. HOUGHTON: No objection.

JUDGE BARBAN: General Counsel's Exhibit 8 is received. (The document heretofore marked as General Counsel's Exhibit No. 8 for identification was thereupon received in evidence.)

MR. CIARAMITARO: Then there is GC-9, a letter dated July 18, 1973, from Mr. Houghton to Mr. Lewis. That letter, in its first sentence, indicates that this is a reply to a July 13, 1973 letter from Mr. Lewis to Mr. Houghton. We are still looking for a copy of that July 13 letter.

And, as a further explanation, Mr. Houghton will catch me if I go wrong, my understanding is that when this letter was received by Mr. Lewis, that he typed in at the bottom of page two of that letter, a reply to it, which reply is dated July 23, 1973, and forwarded it back to Mr. Houghton. Is that accurate?

MR. HOUGHTON: Yes, that is accurate.

(The document above referred to was marked General Counsel's Exhibit No. 9 for identification.)

MR. CIARAMITARO: So with that explanation, I would like to offer GC-9.

MR. HOUGHTON: We have no objection. And we'd like to indicate, your honor, we discussed the July 13 letter. Apparently [28] neither of us have copies of it here. And if it's agreeable, we would stipulate to provide your honor with a copy of that letter so the record is complete—either by mail or through the Board or attaching it to our briefs.

JUDGE BARBAN: First, let me indicate that General Counsel's Exhibit 9 is received.

(The document heretofore marked as General Counsel's Exhibit No. 9 for identification was thereupon received in evidence.)

JUDGE BARBAN: With respect to the asserted July 13, 1973 letter, if the parties discover the letter within 30 days after

the close of the hearing, and if you both agree—and this includes Mr. Lewis—if all parties agree the letter is accurate and should be received, I will receive it if you send it to me with a proper stipulation.

MR. CIARAMITARO: We can make it a joint submission.

JUDGE BARBAN: And I would suggest—well, General Counsel, why don't you reserve your exhibit No. 13 for the letter dated July 13.

MR. CIARAMITARO: Okay, fine.

JUDGE BARBAN: And we'll leave that open in case you submit the letter.

MR. CIARAMITARO: Next is GC-10, a letter dated August 6, 1973, from Mr. Houghton to Mr. Lewis.

(The above referred to document was marked General Counsel's Exhibit No. 10 for identification.)

[29] MR. HOUGHTON: No objection.

JUDGE BARBAN: General Counsel's Exhibit 10 is received.

(The document heretofore marked as General Counsel's Exhibit No. 10 for identification was thereupon received in evidence.)

MR. CIARAMITARO: As GC-11, a letter from Mr. Lewis, dated August 9, 1973, which is addressed to both the arbitrator and Mr. Houghton, which enclosed GC-12, which is a bilateral agreement dated August 6, 1973 and executed by both Mr. Houghton and Mr. Lewis.

(The document heretofore marked as General Counsel's Exhibit No. 11 for identification and General Counsel's Exhibit No. 12 for identification.)

MR. HOUGHTON: No objection to either of those two exhibits.

JUDGE BARBAN: General Counsel's Exhibits 11 and 12 are received.

(The document heretofore marked as General Counsel's Exhibit No. 11 for identification and General Counsel's Exhibit No. 12 for identification were thereupon received in evidence.)

Q. (By Mr. Ciaramitato) Mr. Lewis, the last exhibit we had was the letter of August 9 from you to the arbitrator, which enclosed the written agreement between you and Mr. Houghton, dated August 6. After August 9, 1973, do you recall ever again making any verbal or written requests for the information that you had been requesting all along, after August 9, 1973? [30] A. After August 9, 1973?

Q. Yes. A. Well, yes. Getting back to the chronology of these events, on August 6 Mr. Houghton and I signed what might be called ground rules for filing the briefs and holding certain things in abeyance.

The arbitrator's decision came down and it was the type of decision which called for further activity on the part of both of us. We had to re-examine certain employees. So we had to have another hearing. We disagreed as to the placement that certain employees, even after the arbitrator's decision came down. We had to have another hearing.

So at the outset of the new hearing, I again reiterated my demand for disclosure of the tests. I said now I need them worse than ever. I thought that the arbitrator's decision made it quite clear to me that I should have them. I couldn't proceed the way I wanted to unless I got the information. So, again, I reiterated and that was on the re-hearing, recently. I don't know the exact date. I have to get my book. July of '74.

MR. CIARAMITATO: Mr. Houghton, can we stipulate that that re-hearing date was July 18, 1974?

MR. HOUGHTON: Yes, that is correct.

THE WITNESS: Yes.

MR. CIARAMITATO: I'd also like to propose a stipulation that—I'd like to have this marked.

[31] (The document above referred to was marked General Counsel's Exhibit No. 14 for identification.)

MR. CIARAMITATO: I would like to propose a stipulation that GC-14, that that hearing of July 18, 1974, was based upon a submission, question for resumption of hearing submitted by Mr. Lewis, which would be GC-14.

MR. HOUGHTON: No objection.

JUDGE BARBAN: General Counsel's 14 is received.

(The document heretofore marked as General Counsel's Exhibit No. 14 for identification was thereupon received in evidence.)

Q. (By Mr. Ciaramitato) So you've indicated that at this July 18 hearing you made additional requests? A. Right.

Q. Now, what, if any, response was there to those requests by company representatives at that hearing? A. The company position was the same, they couldn't give me the actual tests, the test batteries, the individual scores attached to individual names and so forth and so on. It was a reiteration of their previous position.

Q. Now, since the close—did that hearing close? A. Yes.

Q. Since the close of that hearing, has the arbitrator issued any decision of any sort? A. No, it's pending.

Q. Pending now. Mr. Lewis, referring to the grievance PMO-123 [32] could you very briefly tell us what basically was involved in that grievance. A. Yes.

Q. Not about the merits, but what the claim was. A. There was a vacancy posted for six instrument repairman jobs at the Monroe powerplant. Monroe is a city near here. Normally people promote from within the plant, that's the first priority. So some ten, I believe it was ten people, from the plant bid for those jobs.

If the management is unable to get people from within the plant, they are allowed to go to other plants. The seniority is sort of on a plant basis. The priority is on a plant basis, if you want to call it that. The management foreclosed the entire ten people from the Monroe plant, who did, on the ground that they did not pass these tests. Solely for that reason.

On the other hand, they selected people from the second priority whom they said did pass these tests. So the sole criteria used was whether they passed that test or not. Now these men all agree they had a grievance.

Q. Those people who did not get the jobs are those that filed the grievance, is that correct? A. That's right.

Q. Obviously those that got the job didn't file a grievance? A. They didn't file any.

Q. Those that got the job were from outside the Monroe plant? [33] A. That's correct.

Q. Those that did not get the job were from within the Monroe plant? A. That's correct.

Q. During that grievance proceeding, the time it was filed, up to now, you have requested the actual tests themselves?

MR. HOUGHTON: I'll object to the conclusionary nature. We've had evidence that requests were made at the arbitration level, but there's been no evidence any requests were made while the grievance was being processed.

MR. CIARAMATATO: I'm sorry, then. At one or another time, including the arbitration, that requests were made, is that right?

THE WITNESS: Formally the requests were made in the very beginning and then they were made at the arbitration level, and they were discussed many times through-

out the proceeding. Every so often the question would arise. Now, if I only had the tests, I could do something, but I didn't get them. So—

Q. (By Mr. Ciaramitato) The question I have is what do you need the tests for, the actual tests. A. Under the clause, which is Article B, Section 38, it's a sort of a vague generalized criteria. It says normally the vacancies are filled by members of the bargaining unit, that specific bargaining unit, which is Monroe Plant.

And then you get into reasonable qualifications and abilities [34] being considered. Then total length of service would govern, and so forth. Then there is another thing there called significant difference shall be head and shoulders difference. These are kind of vague criteria, I agree.

For the first time, to my knowledge, and I have been dealing with Detroit Edison since about 1952 or 1953—and I've been in on all their negotiations from about 1953 to 1970 when I left to go to Washington on this new job—this was the first time that the tests became a new dimension. That is to say you have to get over this hurdle, pass the tests, before we will even consider your reasonable qualifications and abilities. If you don't get over the tests we won't even admit you to an examination of further abilities and further qualifications and, of course, you wouldn't get it at all.

So the length of service meant nothing. If the employee couldn't get over that first hurdle he just didn't get anywhere. So I figured since this was such a very important new dimension which I had not seen before, I wanted to see what these tests were all about. And I wanted to see the scores of this man versus the other man, the scores within the Monroe plant as contrasted to the people who got the job from outside the Monroe plant. And that is why I made the request. That's the first thing. You're asking me for reasons.

Q. Those are the reasons. Are there additional reasons for these requests? [35] A. Then I'd be getting into merits, maybe when I would get the tests. Are you asking me what I would do with them? That would be getting into merits and I don't suppose the Board—

Q. What you needed the tests for? A. It's an entirely new dimension. It was a new hurdle over which the employees had to jump before they'd even get consideration.

* * *

CROSS EXAMINATION

Q. (By Mr. Houghton) Mr. Lewis, I understand you wanted the [36] tests because of a new dimension. Now any other reasons other than that? A. I think that's really enough. Again, I don't want to get into the merits because this is a question of disclosure here. But I would see the relevance of the tests to the job. Obviously if there was Einstein's theory in there I would say that was an unfair test or things like that. I'm getting into merits, though.

JUDGE BARBAN: Mr. Lewis, I don't think we can make that clear distinction between merits and relevance at this point. I think it is true that I'm not going to pass on the merit of your grievance to the extent that I'm not going to decide whether one may or should in fact, get a job over another, if that's what you're talking about, merits. But I have to know enough about the relation of the tests to the problem.

THE WITNESS: Okay, Now I will go back to you question, you honor, as well as answer counsel's question at the same time.

JUDGE BARBAN: Now you answer counsel's question, let's not go back to any other question.

THE WITNESS: Well, all right. I must know the reasonable relevance of the tests to the job. I got to know that. I've

got to know the individual score attached to the individual name. I never got that. I must see it. I must verify it.

Q. (By Mr. Houghton) All right, now, do I understand, Mr. Lewis, taking the second point first, that the reason you wanted [37] to see the scores with the names was to verify the accuracy or the determination? A. Right. First I wanted to see if you scored everybody the same way.

Q. I'm speaking of your response. If we could stick to this one point for the moment. You said you wanted to see the scores individual employees received opposite a particular score. A. First I would have to see you scored everybody uniformly, the same way.

Q. We're jumping into the scoring procedure. I'd like to stick with just the scores. You wanted to see the scores themselves? A. Yes.

Q. And the purpose of that was to what? Verify? A. Right.

Q. What the company had told you already. A. The company had never told me a score.

Q. Well the scores were disclosed during the arbitration, were they not? A. No they were not.

Q. Were they not disclosed? A. No, sir, they were not.

Q. Let me finish the question—without reference to particular employees names, A, B, C, D, E, F, G? A. X, Y, Z. That couldn't tell me very much. I agree.

[38] Q. Were those disclosed in that fashion? A. There was an exhibit given if that's what you're talking about and it goes like this: The battery scores in grievance PMO-31, employee one was an incumbent, employee two got twelve point eight; employee three got twelve point three, employee four got ten point four; employee five got ten point four, employee six got ten point four. For those who did not get the job, the grievance, employee one got nine point three, employee two got eight point seven, em-

ployee three got eight point five, employee four got seven point "o", employee five did not show up for the testing, employee six did not show up for the testing.

Now, beyond—

Q. Excuse me. My question at this point, Mr. Lewis, is after receiving that information you had the scores, but you didn't know which score went to which employee, is that correct? A. That is correct. And this was only twelve people.

Q. That involved all of the grievants? A. Let me go back a bit.

Q. Before we go back. I have a specific question. There were a certain number of grievance, is that correct? A. Yes.

Q. Ten? A. The grievance speaks for itself. I think it says that the people in the Monroe plant should have got the job and not the [39] people on the outside.

Q. Does not that exhibit purport to be the scores from the folks at the Monroe plant? A. This is what management said, yes, without putting a name to a score. You said employee one, employee A, employee B, and so forth.

Q. Now I'd like to turn to a second dimension and that is the method or manner in which these types of tests are scored. Did you, at one point, during discussions with the company, ask for an explanation as to how these tests are scored? A. I might have.

Q. I refer you back to the meeting that resulted from your March 5, 1973, request. Do you recall, at that meeting, having Mr. Roskind explain to you how the tests are scored? A. I believe he gave explanations.

Q. Do you recall— A. But again, not with specific names or grievants, just generalizations.

Q. Yes. I was speaking of the manner in which they're scored. A. Yes.

Q. Do you recall, at that meeting, for example, having asked Mr. Roskind are those tests scored by keys or is

there some subjective analysis involved? A. Yes, I believe I asked that questions.

Q. And do you believe or recall Mr. Roskind reply that these [40] are scored by keys, that there is no subjective analysis? A. Roughly, yes, something like that.

Q. Now with respect to the tests themselves. As I understand it you said you wanted to look at the actual tests to determine their relevance. Is that correct? Now, first of all, in making a determination as to relevance, have you yourself had any training in the field of psychological aptitude testing? A. No.

Q. You, yourself, would not be qualified to make a decision as to whether a particular test was relevant in terms of statistical analysis, would you? A. I really don't know.

Q. Now when you speak of relevancy, if I understand your answer, you're looking at what is called the concept of face validity. In other words, if you looked at a question and it said do you like to go up north for your summers or down south? If that question was asked on the instrument man test, you might well conclude that that question doesn't have any face validity, it's ridiculous and it shouldn't be asked. Is that the type of thing you were looking to determine? A. No, so I mentioned Einstein's theory, of course.

Q. Well I don't know whether Einstein's theory might or might not be appropriate to instrument man work. A. I might argue that it shouldn't be. That would give me a new argument for the arbitrator, which I didn't have.

[41] Q. In other words, are we in agreement that basically what you were looking at was to determine the so-called face validity of the various questions asked? A. Yes. I think my reading of most of the arbitrations in this respect indicate to me—

Q. I'm not interested in your readings of the arbitration cases. A. Well, we have to go by some barometer and it seems where tests are employed—

Q. Excuse me, Mr. Lewis, where tests are—I don't think this is responsive. My question is why did you want this information? And your answer is to determine the face validity.

MR. CIARAMITARO: He's interrupting the answers to the questions.

JUDGE BARBAN: The witness is entitled to give a full explanation of why he wanted the information. If his reason is based on his research you can still say that. You may complete your answer if you have not done so.

THE WITNESS: My experience with these types of cases indicates that where a test is given it must have some reasonable relationship to the job at hand. It cannot—and I won't go into whether arbitrators at other places have ordered the material put out on the table or given the material to the union or things of that kind. And I'd also find that there's such a thing as an unreasonable cutoff score and a reasonable cutoff score, which [42] we have no control over whatsoever. And more than that, in this case, what we had experienced in the past was an employee appraisal system on promotions—that is to say a supervisor, a group of supervisors would sit in judgment as a council and appraise employee A, B, C and D as to one, two, three, four, five good or bad, as to his absentee record, as to his mechanical ability, as to his cooperation, as to his knowledge of company rules, and so forth. And practical things. This is what we had experienced in this company up to this time.

Now, all of a sudden, we had a psychological test hurdle over which the employee must jump. And the management made it very clear that he must jump that hurdle. There is no other way. The didn't say if the cutoff score was ten, that if he got nine and a half and he was a twenty-year man, he would be admitted. Or, if he got ten and a half and he was a two-year man, he wouldn't.

In other words, there was no variation there. No flexibility. A twenty-year man could get one half point away from the cutoff score and be outlawed, foreclosed. So that was our problem.

Q. (By Mr. Houghton) Looking at the actual tests themselves, so we're clear. You want it, as I understand it, for the reasons you've given. To look at the tests, to determine whether or not the questions had any face validity. A. The word validity I'm not clear on, Ralph. It's an expression that's apparently used by psychologists. I wanted [43] to look at relevance, yes.

Q. Okay. Let me give you my explanation or what I intend when I use the expression face validity. To look at the question and see whether they look like they had anything to do with the job. A. All right.

Q. Now you mentioned a cutoff score. You don't claim, do you, that by looking at an actual test, you thereby determine what a cutoff score is? A. No. But again, as I just said a moment ago, if I had a twenty-year man and the cutoff score was fifty, let's say, and he only got forty-eight and a two-year man got fifty-one, you see. I don't think that's enough of a variation to keep that twenty-year man from getting the job.

Q. Mr. Lewis, do you know they determine, statistically, a cutoff score? A. I saw how they do it, yes. I'm not saying I agree with it, but I saw it.

Q. And the data necessary to determine the cutoff is not found in the test itself, is it? A. No. I saw how they do the scatter charts, if that's what you're thinking about. And how they give the test to incumbents on the job and then take the average and things of that nature, if that's what you're talking about. I've seen them do that, yes.

[44] Q. I would agree with you, Mr. Lewis. If I were in your shoes I would think I'd have a right to determine whether the test was job related, whether it was valid and whether, when it is applied, it's consistently applied and measures what it's supposed to measure. I think that's

essentially what you're after. Now my question to you is that in determining validity or consistency of a test, do you not have an understanding, from this case, that information is gathered, not from a test itself, but from a validation study? A. Yes, I seen those. I'm not saying I agree with that. I'm saying that's what you do.

Q. All right, looking at this grievance PMO-123, you mentioned in your direct examination that it did go through the company's grievance procedure and through arbitration. A. That's right.

* * *

[50] Q. (By Mr. Houghton) Mr. Lewis, in previous testimony it's been indicated that there were four days of initial hearing before an arbitrator in this case and a fifth date on a subsequent hearing in July of this year. Is that correct? A. That's right.

Q. Transcripts were made each of those days? A. Yes, sir.

MR. HOUGHTON: I will ask the reporter to mark as proposed Respondent's Exhibit 7, the May 23rd hearing transcript; and proposed Respondent's Exhibit 8, the May 24th transcript of hearing. As proposed Respondent's Exhibit 9, the May 30th transcript of hearing. And as proposed Respondent's 11, the July 18th, 1974 transcript of hearing.

(The documents above referred to were marked Respondent's Exhibits No. 7 through 11 for identification.)

[51] JUDGE BARBAN: Off the record.

(Discussion off the record.)

JUDGE BARBAN: Back on the record.

Q. (By Mr. Houghton) Mr. Lewis, I hand you what has been marked as proposed Respondent's Exhibit 7 through

11 and ask you if those are, in fact, transcripts of the record of this case, that is PMO-123, before the arbitrator.

JUDGE BARBAN: Mr. Ciaramitaro?

MR. CIARAMITARO: Yes, your honor?

JUDGE BARBAN: Subject to your further check of the documents that have been offered, can't we stipulate that these are what counsel is stating they purport to be?

MR. CIARAMITARO: Yes, your honor, I'd be willing to so stipulate.

JUDGE BARBAN: Do you have any problem with that, Mr. Lewis?

THE WITNESS: What?

JUDGE BARBAN: That those are actually the transcripts of the arbitration.

THE WITNESS: Those are.

JUDGE BARBAN: Are you offering those?

MR. HOUGHTON: Yes, we would offer those at this time.

JUDGE BARBAN: I'm not able to talk you out of it! All right. That was meant to be facetious, by the way. Respondent's Exhibits 7, 8, 9, 10 and 11 are received.

[52] (The documents heretofore marked as Respondent's Exhibit Nos 7, 8, 9, 10 and 11 for identification were thereupon received in evidence.)

* * *

[54] (By Mr. Houghton) Mr. Lewis, I'd like to refer to this March 5 request so that we can determine actually if any was taken by the company. I'm referring to General Counsel's Exhibit 4, in which you make four specific requests, is that correct? A. Yes.

Q. And with respect to your first request, the actual battery of tests used in the matter, as I understand it,

those were not furnished? We did not supply them? A. That is correct.

Q. With respect to number two, the method of scoring or grading and the actual criteria for finding recommended or not recommended. Now the material for recommending validation was [55] not in the study, is that correct? The actual scores—employees names were not provided, but the scores were provided? A. Right.

Q. The company did not supply actual scores with actual names. They did give, at the hearing, a generalization of how they went about it. Is that what you wanted?

And I'm referring not to the hearing, but to this letter. At the hearing subsequent to this letter, you were, it was explained to you how the company went about grading these tests, what criteria was used. A. Yes, there was a generalization of that kind, right.

Q. And a method of scoring was explained? A. In a generalized way. From a psychologist's standpoint, yes.

Q. All right, now item number three is entitled a report on the test validation. Now the validation studies were given to you, were they not? A. There was a validation study given me, that's right. The question here is there are validations these days, and there are validations. I could have been probably clearer in my request, but they have now what's called the EEOC validations, Equal Employment Opportunity Commission validations. Now they have validations within the company, and sometimes the companies have to go to the EEOC and say are our validations consistent with the new law, and Title Seven case and all that sort of thing. [56] This all came in to this question here. But you did give me what you consider to be a validation study on the subject. Right.

Q. Mr. Lewis, you're not aware, are you, of any other validation studies on this particular battery of tests for this job? A. No, no.

JUDGE BARBAN: Mr. Lewis, for my information, what is a validation. What is your interpretation of a validation?

THE WITNESS: Well, it's a system that is used by people who give tests to decide whether it is a fair test if given to the same incumbents on the job now.

For example, if there were forty people in the job and they were making four others, they might try to get a consensus of what the forty people know and what skills the forty people have and what dexterity the forty people have to be able to give a test for those four others. In other words, it's a relevance to the job, a predictability for the job. That's about it. It's kind of vague, but this is the way it's done as I understand it.

JUDGE BARBAN: And as I understand it the company gave you the conclusions of some other organization as to whether or not the tests were fair and relevant. And it's simpler—to put it in its simplest form?

THE WITNESS: They sent some of their tests, this company is having a problem as well as our union, with the Federal courts [57] right now. The equal employment opportunity commission has leveled a Title Seven charge against both of us on the grounds that the company didn't hire enough minorities and promote enough minorities. And against the union because the union perpetuated a seniority system which doesn't help that any.

All of this happened about the same time, so the company was in the process what was fair and honorable testing for people. And I think they engaged some consultants from Texas or somewhere to go over their validation studies, those that they had made themselves, in-house validation studies, quite apart from EEOC validation studies to see if these were fair and proper and would meet the standards of, let's say, the psychological society rather than the EEOC.

That's what I'm saying. I know I'm getting complicated, but—

JUDGE BARBAN: Now you've explained to me what I wanted to know. I'm sorry to have interrupted you, Mr. Houghton.

MR. HOUGHTON: That's all right, your honor.

Q. (By Mr. Houghton) So that we're clear about following the judgments in question, Mr. Lewis, this request number three, entitled report on the test validation, what you were after there was the Detroit Edison validation? A. Yes.

Q. And you received that? A. Yes, and if you had any EEOC validations, I would have [58] accepted that too. But I guess they didn't have any.

Q. Number four says a report by the National Compliance Company? A. Yes.

Q. You received that report also? A. Yes. Which, by the way, was critical in some ways of Detroit Edison's systems.

Q. The National Compliance Company did find that the test battery was a valid test battery, with a proper— A. Well, again, if we want to get into that report I think it also said you promoted certain people without any tests at all, so you get into all kinds of ramifications of that particular report. The fact is that—I have it here, somewhere.

Q. I don't mean to cut you off, but I think for purposes of this hearing we are not concerned with—not so much with what the report had to say but whether it was furnished or not. A. It was furnished.

(A document was marked Respondent's Exhibit No. 13 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I hand you a booklet which has been tentatively marked proposed Respondent's

Exhibit 13 and ask you if you can identify that for us? A. Yes. I believe this is a document given to me at the Detroit Edison Company whatever date that was.

Q. For the record, you're referring to the April second [59] meeting? A. April second. This was the document given to me at that time.

Q. And am I correct that this was the document given to you in your request of paragraph three of your March 5 letter? A. Yes, this was purported to be a type of validation which Edison used.

MR. HOUGHTON: We would offer the exhibit, your honor.

MR. CIARAMITARO: No objection.

JUDGE BARBAN: No objection? Respondent's 13 is received.

(The document heretofore marked as Respondent's Exhibit No. 13 for identification was thereupon received in evidence.)

(A document was marked Respondent's Exhibit No. 14 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I now hand you what has been marked proposed Respondent's Exhibit 14 and ask you if you could identify that? A. Yes, this is the document by the National Compliance Company of Texas, which is some kind of a consulting company which the company used. Right, that was given to me.

Q. And was that the document that was given to you in response to your request number four in your March five letter? A. Yes, that's four.

MR. HOUGHTON: We would offer the exhibit, your honor.

JUDGE BARBAN: Any objection?

[60] MR. CIARAMITARO: No objection.

JUDGE BARBAN: Respondent's 14 is received.

(The document heretofore marked as Respondent's Exhibit No. 14 for identification was thereupon received in evidence.)

JUDGE BARBAN: I assume that was given to him on the some day, April second?

THE WITNESS: Yes.

Q. (By Mr. Houghton) Is that correct Mr. Lewis? A. Yes that was, two documents I was given on that day.

Q. Now, with respect to the April second letter, you testified earlier as to who was present? Would I be correct that in addition to the persons you named, your Local president, Mr. Johnson was present at that meeting? A. I don't recall whether he was. I'm willing to agree, Ralph, but life to me is one new face after another, so maybe he was.

Q. You have no present recollection? A. If he was, that's all right.

Q. Mr. Lewis, now in addition to the materials that we've discussed in the exhibit I just introduced, did the company disclose additional information pertaining to the types of questions on the tests at the arbitration hearing? A. Yes, yes. The company gave—well one thing here, Titled, example, multi-aptitude test. Another one was called the formulation test, a mathematical reasoning test. These [61] were like sample tests bought off a counter in a store, to show us that these are the kind of things that we do. That these samples, so to speak, and, are supposed to be some kind of relevance to the real tests. The form board samples were here and so forth. Just samples.

Q. Would I be correct, Mr. Lewis, that these samples were given to you that they were representative of the types of questions on the test, that they were not the actual test questions. A. They were not the actual test questions. If they were then you would have been complying with my request.

(A document was marked Respondent's Exhibit No. 15 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I hand you what has been marked proposed Respondent's Exhibit 15, titled "Multi-Aptitude Test", and ask you if this is a copy of that furnished to you at the arbitration hearing? A. Yes, this was given at the arbitration as a sample for the arbitrator and for us, I suppose.

Q. And would I further be correct, looking at the front page of that exhibit, that item roman numeral ten, paper form board was indicative of the type of questions on the form board test? A. Yes, in the back of that, I think is some samples. The last two pages were samples of Minnesota form board, the last three pages.

Q. With respect to roman numeral six, mechanical comprehension, [62] were those samples of certain other questions on the EPSAT test? A. Mechanical reasoning?

Q. Mechanical comprehension in this booklet? A. Within the book? I'm sorry, yes. I think, mechanical comprehension, yes, is a section of this book with some samples.

Q. And questions of that type were on the EPSAT test, is that right? A. That's what you said.

Q. That's what the representation was. A. Yes.

Q. Looking at roman numeral three, which is entitled "arithmetic, was a representation made that those samples under Roman numeral three, were like types of questions on the EPSAT test? A. Yes. This little book had some sample arithmetic questions.

Q. And you said that— A. And you said that the company said that these were likely the questions given on the real test.

Q. And the same is true with Roman numeral one, vocabulary? A. Yes, the first section in this book was vocabulary. And you said that this was a vocabulary test pretty much similar to that given in a real test.

Q. Now am I also correct the company represented, with respect [63] to Roman numerals two, four, five, eight and nine, that those matters did not have any particular relevance to the EPSAT test? A. Yes, the company said that's true, called general information was not used. Four, called number series, was not used. Five, called figure classification, was not used. Seven, word recognition, was not used; and eight, scrambled letters, was not used. And nine, checking, you said, was not used.

Q. Thank you, Mr. Lewis. We would offer this exhibit.

MR. CIARAMITARO: No objection.

JUDGE BARBAN: Respondent's 15 is received.

(The document heretofore marked as Respondent's Exhibit No. 15 for identification was thereupon received in evidence.)

Q. (By Mr. Houghton) All right, Mr. Lewis, with respect to information on what we have referred to as the EPSAT test, is it your understanding that this is a six-part test? A. The company said it was, yes. A series of tests.

Q. And, referring to the previous exhibit, you were only supplied with copies of questions that would pertain to three of the six sections on EPSAT and the form board? A. I believe that's what the company said.

Q. Now, with respect to the other three sections of the EPSAT test, did the company endeavor to provide you with examples of the types of questions on those remaining three sections? A. The company gave me a—a thing called formulation, if that's what you're talking about, which gave just a few samples, [64] two samples of questions, physical science comprehension, which gave one sample and arithmetic reasoning, which gave two samples. Is that what you're talking about?

Q. Yes. Now this information was given to you at the arbitration hearing? A. That's right.

Q. In addition to that information, with respect to these three areas, that is, formulation, physical science comprehension, and arithmetic reasoning. Were you given further examples of each of those? A. I got another one called mathematical reasoning, is that what you're talking about?

Q. Yes, that's one of them. A. It's a different title, mathematical reasoning, versus—

Q. Arithmetic reasoning. A. Arithmetic reasoning, but anyway, we were supplied some samples of mathematical reasoning questions. Right.

Q. Were you also supplied with further examples of physical science comprehension questions? A. Just a moment. Yes, we were supplied with some homemade, there were homemade, these were not store bought. Is that what you are talking about? Questions about physical science comprehension, which our instrument found incredible.

Q. And were you supplied, also, with additional examples of [65] formulations type questions? A. What would be the general title of formulations? Computer, what do you call it?

Q. Sixty-two. A. I got sixty-two, about arithmetic reasoning?

Q. Formulation. A. Well, we differ as to title on that. You mean we got some further instructions or what's known as part three and its title up on top, computer programmer, arithmetic reasoning and so forth. Yes, I know what you're talking about. We got it.

(A document was marked Respondent's Exhibit No. 16 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I hand you a copy of proposed Respondent's Exhibit 16 and ask you if that is the information you were given, which had two questions in each of the three categories we just discussed? A. Yes, I have it in my book, that's the one.

Q. And that was furnished at the arbitration hearing? A. Yes, it was.

MR. HOUGHTON: We would offer the exhibit.

JUDGE BARBAN: What number is that?

MR. HOUGHTON: Sixteen.

JUDGE BARBAN: Any objections?

MR. CIARAMITARO: No objections.

JUDGE BARBAN: Respondent's 16 is received.

[66] (The document heretofore marked as Respondent's Exhibit No. 16 for identification was thereupon received in evidence.)

(A document was marked Respondent's Exhibit No. 17 for identification.)

Q. (By Houghton) Mr. Lewis, I hand you what is marked proposed exhibit 17 and ask you if this is the additional information you were respect to the arbitration hearing? A. Yes, I have this in my book, which indicates it was given at the arbitration hearing.

MR. HOUGHTON: We would offer 17.

MR. CIARAMITARO: No objection, your honor.

JUDGE BARBAN: Respondent's 17 will be received.

[66] (The document heretofore marked as Respondent's Exhibit No. 17 for identification was thereupon received in evidence.)

(A document was marked Respondent's Exhibit No. 18 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I hand you what has been marked as proposed Respondent's Exhibit 18 and ask you if that's a copy of the information furnished you about formulation of the EPSAT test. A. Yes, I have that in my book, which indicates it was given at the arbitration hearing.

MR. HOUGHTON. We would offer Exhibit 18, your honor.

MR. CIARAMITARO: No objection.

[67] JUDGE BARBAN: Respondent's Exhibit 18 is received. (The document heretofore marked as Respondent's Exhibit No. 18 for identification was thereupon received in evidence.)

(A document was marked Respondent's Exhibit No. 19 for identification.)

Q. (By Mr. Houghton) Mr. Lewis, I hand you what has been marked proposed company exhibit 19 and ask you if this is a copy of the questions showed to you on computation in the tests? A. Yes, this is the one I refer to as homemade, which our men found incredible.

JUDGE BARBAN: Do I understand that you showed some or all of these samples to your members involved?

THE WITNESS: No, no. We got this after the grievance.

JUDGE BARBAN: You showed them at some point?

THE WITNESS: At the hearings, yes, we asked the men, did you ever see these before, and so forth. Yes, that type, the grievance. Is that what you mean?

JUDGE BARBAN: I'm asking you. You're giving the evidence. You showed these samples, at some time or other, to the actual grievants?

THE WITNESS: At the hearing.

JUDGE BARBAN: Mr. Houghton, we're running close to one o'clock. Are you going to be much longer?

MR. HOUGHTON: Probably fifteen minutes or so.

JUDGE BARBAN: Go ahead.

[68] Q. (By Mr. Houghton) I refer you to General Counsel's Exhibit 10, which is a letter dated July 18, 1973, from

myself, sent to you. Attached to that letter is certain information regarding test procedures, is there not? A. Yes.

Q. You were furnished with those attachments at the time you received the letter? A. Yes.

Q. And am I correct that that information purports to be an explanation of battery weights, raw scores and items on the Minnesota form board EPSAT test? A. Yes.

Q. And— A. That is what you reported to me, method used.

Q. And the last attachment, would I be correct that that demonstrates the weights and raw scores on the tests? A. Yes, if I understand it correctly the raw scores are reconciled to a weight and the two weights put together register the man's total score. Is that it?

Q. All right, now, Mr. Lewis, you understand, do you not, that these tests we're talking about, this test battery, is designed to measure psychological aptitudes? A. That is the way they reported it, yes.

Q. And the test is not designed, as you understand it, to measure job knowledge, is it? [69] A. No, I guess not. At least that's what you said.

Q. With respect to determining pay rates in the company, would I be correct that all pay rates for all jobs, including this job in question, are negotiated between the company and the union? A. Yes, they are negotiated.

Q. And there are specified questions where you go from a specific starting to a final maximum range? A. Yes.

Q. And this test we're talking about was not used to determine pay rates as such, was it? A. No.

Q. In terms of the scores, were you also advised that the company used this test in the fashion of a go or no go situation. In other words they were not using test scores to compare one person with another. A 10.3 or a 10.4 or a 10.5, it was not used for internal comparisons like that, was it? A. That's correct. You said that this was a go, no go, pass, fail system. You either got over the hurdle or you didn't and if you didn't get over the hurdle you didn't

get considered for the job, is that what you mean? A. Yes.

JUDGE BARBAN: Just to clarify my own thinking, we are talking about a promotional situation.

THE WITNESS: Yes.

[70] JUDGE BARBAN: Are we not?

THE WITNESS: Yes, in this case.

JUDGE BARBAN: Mr. Houghton?

MR. HOUGHTON: If we're speaking the same language, there were openings within a job classification. Under the contract, the employees can sign up on a bid sheet and bid for that opening and that's what we're talking about.

JUDGE BARBAN: And you permit—for my purposes, I find—the contract—do you permit lateral movement or is this only up and down?

MR. HOUGHTON: The employee can bid wherever he wants, subject to the terms of the agreement.

JUDGE BARBAN: Thank you.

THE WITNESS: The priorities within the individual headquarters, to start with, I think I pointed that out in the first place. The first priority is there, then the other priorities come in.

Q. (By Mr. Houghton) Mr. Lewis, in your testimony, I believe you stated earlier, that when the grievance was initially filed, that demands were made for actual copies of the tests? A. Yes.

Q. The only evidence that I've seen is that after the grievance went through the first, second and third steps, and when it got to arbitration, I believe, on May 23, you furnished a written request for some certain information. Prior thereto, [71] you're indicated your first formal request was March 5, in your letter to the company.

Now what actual request for the information was made prior to March 5, 1973—of your own knowledge? A. I really don't know. When they asked me to come in and handle the arbitration case for them I said well, we'd better get disclosure on these tests and on these cutoff scores and on these grades which these people got. That's my number one proposal.

So I told the union we'd better immediately demand disclosure. If we're going to an arbitrator it's a little different than processing a case with a supervisor.

Q. So prior to March 5, you've had no involvement and wouldn't know whether there was or wasn't any request? A. No, I don't.

MR. HOUGHTON: That's all I have.

* * *

REDIRECT EXAMINATION

Q. (By Mr. Ciaramitaro) All of these sample tests, sample questions, you were never provided the actual questions for the [72] test that was used? A. No, sir, we were not.

* * *

[80] DIRECT EXAMINATION

Q. (By Mr. Houghton) Mr. Lewis, at any time, did you ask any of your members, employees of the Edison Company, if they would consent to the company's releasing their test scores? A. No, and I might add I wouldn't dare because we are the collective bargaining agents and the company doesn't deal with individuals, they deal with us.

Q. You made no such request? A. No, and I will not.

Q. Now at any time, Mr. Lewis, after you were furnished with this information we've been discussing, did you or your union, at any time, turn it over to or seek to consult with a professional psychologist? [81] A. I briefly talked

with a fellow from the university of Wisconsin, who is a friend of mine, if that's what you want to know.

Q. But you did not formally turn this material over, for example, to a professional psychologist and say— A. No.

Q. —excuse me, can I finish? You have some material the company has furnished me, can you make a determination for me as to whether this is or is not a valid test? A. My view on the question is like the one I just answered. We have twenty-five bargaining units here, each is an independent bargaining unit. There were twenty-five elections over the years and there are twenty-five units. These twenty-five units are certified on wages, hours and working conditions.

This question of us giving certain material from the company and turning it over to a professional psychologist doesn't sit well with us. We think the people on the firing line ought to understand the criteria put forth for promotion. It shouldn't have to be sent to some professional psychologist. Why shouldn't the chairman of each plant understand the criteria for promotion? This is our problem.

Q. Without appropriate training, fortunately or unfortunately, I guess, we are not able to understand all matters. My only question was you did not seek outside psychological consulting services at all? [82] A. Not in that sense. I talked to a friend of mine. He's familiar with this subject and I just wanted to get what he thought, that's all.

* * *

[83] DR. MARVIN DUNNETTE

(a witness called by and on behalf of the Respondent, being first duly sworn, was examined and testified, as follows:

DIRECT EXAMINATION

JUDGE BARBAN: Be seated, please.

Q. (By Mr. Houghton) Sir, will you give us your full name for the record, please? A. Marvin D. Dunnette.

Q. Mr. Dunnette, where do you reside? A. Minneapolis, Minnesota; 501 South Medow Land.

Q. What is your profession? A. Industrial psychologist.

Q. Do you have a degree in industrial psychology? [84] A. I have a Ph.D. degree.

Q. When did you receive that? A. 1954.

Q. Where did you receive that degree? A. University of Minnesota.

Q. Prior to receiving your Ph.D., what college educational training did you have in addition to that? A. I had a bachelor's degree in chemical engineering.

Q. Since receiving your Ph.D. in 1954, will you give us a sketch of the types of activity you have been involved in in the industrial psychology field? A. I worked at Three-M Company for five years. I was in charge of personnel research there. I then joined the faculty of the University of Minnesota, in charge of industrial and organizational graduate training. I directed the planning and training of graduate education in the field. I still hold that position as professor of psychology. I've done a good deal of research over the years in areas of validation of tests and selection of employees in various kinds of activities—clerical jobs, engineering jobs, sales, management. And have been involved in a number of other psychological researches.

Q. In addition to your responsibilities at the University, do you conduct any other business? A. I am president of a consulting firm called Personnel Decision, Incorporated. It's been in operation since 1967, and [85] does manpower research for both business and also under government contract.

Q. While you've been involved in this field, have you had an opportunity to do any writing in this field, in terms of books and papers? In the psychological testing area? A. I've written a number of articles on various kinds of research studies and I also have, I guess, three major books, one called Personnel Selection and Placement, that is most relevant to testing and validation.

Q. And your other two books? A. One is called Psychology Applied to Industry, and the other, Managerial Behavior Performance Effectiveness.

Q. These have all been published? A. Yes.

Q. In connection with your professional activities, Doctor, did you have occasion to involve yourself in testing programs, validity studies and matters of that sort? A. Yes, on very many cases.

Q. Prior to the instant case, have you had any business connections, in the past, with The Detroit Edison Company? A. No, I have not.

Q. Is this the first instance you've been retained as a consultant by that company? A. That's right.

Q. And will you tell us how you first had contact with the—[86] this case? A. Dr. Roskind called me, I believe, in August, and asked me if I might be available to testify. And he related to me on the phone the general nature of the case. And we decided on a possible date. And I then planned to testify. I am, you know, today.

Q. Now when you first spoke with Dr. Roskind and gained your first familiarity with this problem, what was your understanding of the problem and what you would be asked to do? A. My understanding, at that time, was that the issue was related to whether psychological tests should be made available to laymen and, believe we discussed briefly on the phone, the question of the ethics related to the release of such tests.

We also discussed, briefly, the problems of interpreting or releasing test scores, rather than the interpretation of those scores.

Q. All right, backing up to your first consideration, ethics. Are there any ethical problems or standards that are involved in releasing of this nature? A. There are two items of the ethical code of the American Psychological Association. One relating to the release of scores to unauthorized persons, and the other related to the release of psychological tests themselves to persons who are not otherwise equipped to interpret those tests.

MR. CIARAMITARO: I object to this line of questioning, [87] so far as it relates to the ethical problems that may or may not be involved in respect to these examinations. Although I can respect the ethics problems of any professional person, we are concerned of statutory duties, not ethical duties and responsibilities and our concern here in this case is whether there is a statutory obligation to make available information relevant and necessary for a collective bargaining representative to perform his duties. Not whether that may involve an ethical problem for some other group or profession.

MR. HOUGHTON: We have a problem here, I think, where ethical standards may or may not conflict with statutory requirements. It's like the lawyer who is ordered by judge or court to do something which he feels would violate his code of ethics and declines to do so. And I think that for the fact finder to make an intelligent decision, we've got to have that information before the judge.

JUDGE BARBAN: Mr. Houghton, I have this difficulty. The reasons that respondent refused to or failed to give the information may be relevant, to be considered in terms of the testimony of the person who made the decision. What disturbs me here is that this is testimony in the abstract. This is testimony, for example, with respect to, let's limit it to the ethics problem right now. This is testimony with respect to this gentleman's ethics and his understanding of the ethics of a certain group. But it

doesn't help me very much with respect [88] to the reasons that someone in the company made the decision.

MR. HOUGHTON: If I may interject, your honor, I totally agree with that line of questioning. I was about to have this witness indicate the same ethical standards would apply to all psychologists. I do have the company psychologist. I'll reserve the question until we have him.

JUDGE BARBAN: I'd much rather have here, this kind of thing from a person who made the decision and who can be cross-examined on the decision. This witness may be and is, very competent to testify on the general standards in the profession. But cross examining him on the general standards of the profession is not going to get us very far at all.

MR. HOUGHTON: As I indicated, we have the gentleman in the company who made the decision. I'll wait until we get to him.

JUDGE BARBAN: I'm going to sustain the objection to that point, that I want to know and I want to hear from the people who were directly responsible. I assume, however, you have other questions of this witness.

MR. HOUGHTON: Yes, I do.

Q. (By Mr. Houghton) Doctor, when you were initially confronted with this problem, had the Detroit Edison Company endeavored to provide you with certain information? A. Yes.

Q. Regarding the test battery we've been discussing today! [89] A. Yes, I received the validity study from the test battery. I received the arbitration, the preliminary arbitration decision, I received a general explanation in the form of a letter from Dr. Roskind, detailing some of the background as to what had occurred.

Q. Anything else you received? A. I received a copy of the letter that was referred to this morning, the one

that you had written, the one to which you had attached pages detailing the nature of the weighting system.

Q. Now I show you Respondent's Exhibit 13, which is a study of selection tests prepared by the Edison Company. Is that the validation study that you referred to that you received? A. Yes, this is the one I received.

Q. I'd like to place you in this position, where you were called upon to render a professional opinion regarding the test at issue in this case, the instrument man test battery. And, in order to render that professional opinion, as to whether the test is a quote, good test or a valid test, or job-related, what information would you need to have? A. My major information, I'd say, in order of the importance, I would want to see any studies that had been done that are related to the instrument man battery. Any studies done by the company. Any validation studies similar to the one that I did receive. And, second, in evaluating whether the test good or not good, I'd want to look at the test manual to learn what kind [90] of information, what kind of validity had been developed by other researchers and by the test publisher. And, I guess, as a third point, I would be interested in learning how the test is administered and whether it is being administered and what standard, their answers, had been suggested by the publisher.

Q. In connection with formulating this opinion, would you have any necessity to have the actual tests themselves? A. No, I would not ordinarily have a need for the tests at all.

Q. Why is that? A. First of all, because one cannot easily determine how a test item or how a test score will relate to actual job performance without doing a statistical validity study. I can't, even though I know a great deal about psychological tests, I cannot simply sit in my arm-chair and decide that a particular test will not be predictive of job effectiveness on a given job.

So I really do not gain information by looking at a test. The other lines of evidence are much more helpful.

Q. We've discussed a couple of terms in testimony. I'd like you to define them for us if you can. I utilized a term "face validity" in my earlier questioning. Can you tell us what face validity is and how that relates to whether a test is or is not valid? A. That term is used in quite a few different ways. But primarily it seems to—a person has a kind of stereotype in [91] his mind, perhaps, of what a person needs to do in a job in order to be successful. He can then look at a test and if some of the questions in there seem to fit that stereotype of what a person should do in the job, one would say that test has face validity. It would seem that answering these questions in a certain way should fit the kind of notion or impression of what it takes to be successful in a particular job.

So it's a sort of a judgemental linkage between the test and the job. But it's subjective.

Q. What relevance does face validity have in analyzing the question of whether a test is valid or not? A. It doesn't have any relevance if we speak of statistical validity. It has only relevance to the extent it might be useful in a public relations sense. If persons who take a test have a feeling that it does have some kind of face validity, they'd be more accepting, perhaps, of the test.

Q. In terms of utilizing a particular test, we will refer to the instrument man test battery. In order to determine whether that test is measuring what it's supposed to be measuring, is face validity of any importance? A. Only in the public relations sense. It would not be in the strict sense of the way you worded the question.

Q. We've utilized this term validity study. You refer to Respondent's Exhibit 13 as being the study you were furnished. Could you tell us what validity is and what it's seeking to [92] determine? A. The most critical part in the carrying out of a validity study is to perform a sys-

tematic measure of job performance. In other words, develop a criteria which can be used to evaluate or measure differences in the way people are doing the job. So one would first do a very careful job analysis from which he would develop a rating scale or a set of judgments that would relate to performance on the job.

The number of persons who had been in that job might then be evaluated according to the rating scale, the criterion. They would also be asked to take the experimental battery of tests. And then statistical procedures would be used to compare the test scores with the criterion measure. And, in effect, one would be developing an estimate of how closely the test score will reflect the job performance measure, what the hits are, in terms of the agreement between high test, where there is high job performance, and to what extent there might be misses where high test scores may relate the low job performance.

But statistical procedures can be used to give us quite accurate estimates as to the degree of accuracy of a given test by predicting job performance.

Q. So in layman terms, what I understand, a validation study would be a study that you would undertake to then determine whether the test battery was, in fact, predicting what it was supposed to predict, i.e.: successful odds, successful job [93] performance? A. That's essentially what the study would be.

Q. Is that the type of study that is reflected in Respondent's Exhibit 13? A. That is the nature of the study there, yes.

Q. Before we leave this concept of face validity, so that I understand it as a layman, let's assume we had a question on the test that said something like do you prefer to utilize a bedspread on your bed that has geometric patterns, as opposed to a solid color bedspread? And the person is supposed to indicate which answer.

Now, in the face of that question, I might throw up my arms and say "what on earth has that go to do with instrument man work?" It might not have face validity for me. On the other hand, if, in answering that questions, in fact, it was an accurate predictor of who would and would not be a good instrument man, would that be a good question to use on an aptitude test? A. It would be useful as a part of such a test.

Q. Now is that what we mean by face validity, someone would look at that question and say I like the question or I don't like the question? A. Yes, just a general impression of whether that question fits that job without referring to the statistical relationship.

Q. In addition to the validity test you said you would need [94] to look at, to reach a conclusion, you said you would also—said you would want to look at the test manuals? Now what are those and where are they found? A. Publishers of psychological tests will usually have a test manual which, in effect, is the author's statement about how he came to put the test together, why he thought this might be a useful measure to have. But more important, it would include information about the consistency or reliability of the test. In other words, whether persons would get the same general scores if they took the tests many different times. That would be a reliability statement about the test.

And then they will include information about the several validity studies that may have been performed using the test, indicating how the tests had proven accurate for evaluating different kinds of job success. And, finally, a manual will outline in some detail, exactly what the conditions are of the test administration—how the directions should be given, how the examinee would be made to feel at ease, and how the scoring should take place. Usually quite a careful statement will be given about scoring the test and reporting the test scores.

Q. Are these test manuals part of the public domain? That is could I go, for example, to Wayne State University, to their psychology department and receive a copy of the test manual? A. You could typically either go to a psychology department or, perhaps even a business library in the city of Detroit, or [95] perhaps a library at a university, and find such test manuals.

Q. These are in the public domain? Are they all open to the public? I want to understand the tie-in between validity and job relatedness. We've talked about those concepts. In fact, we've run a validation study and the study shows that test does have validity. Does that mean that it is job-related? A. Yes.

Q. They are, in effect, one and the same, one and the same term. Validity encompasses? A. I think job related may be somewhat broader, but validity, but validity presupposes—validity does, indeed, show the test is job related.

Q. Now you used one other term, I don't know whether it was predictability or reliability, or that if I take the test today and I take the same test a year later and about three years later, it would consistently show the same thing. How is that measured, what do you need to determine that? A. The term for that is reliability. One of the best ways of developing reliability is to learn whether the test—whether a person's score on different occasions will be very close to the same score. In other words, if I take the test today and get 120, and I take it six months from now and get very nearly the same score, and that's repeated for several other persons and they all get about the same score, that test would be said [96] to be highly reliably consistent.

Q. With respect to these two tests we're talking about, the Minnesota form board test and the EPSAT test, within the test manual, are there references to studies which have established their reliability? A. Yes, there are.

Q. In addition to some of the documents we've introduced, we've used this term validity and we find reference to two terms, predictive validity and concurrent validity. What do they mean by those two terms? A. Concurrent validity is related to a study wherein the job performance information and the test battery information are obtained concurrently, at the same point in time. So this will usually be a study in which job incumbents are tested. And then test scores related to job performance.

Predictive validity would be the situation, usually, where tests are administered to a group of persons who then are put in a job, or experience a period of time in a job situation, and only at a later point in time would job performance information be gathered. So the correlation is between the prior point in time when the testing occurred and the later point in time when the job relatedness was measured.

Q. If you were called upon to pass judgment on a particular test battery, psychological test battery, to determine whether it had predictive or concurrent validity, would it, in any way, [97] assist you in making that determination, if you had the actual test results? A. No, I couldn't tell much from the test results.

Q. Based upon the information, Doctor, that you received from the Detroit Edison Company, was that sufficient information to enable you to form a professional opinion as to whether or not we had a valid test in this case? A. Yes, there was enough information.

Q. What was your conclusion in that regard?

MR. CIARAMITARO: Objection, your honor. I've let all of this general testimony in respect to what various terms mean, but I do not believe that it's relevant in respect to the issues involved in this case, to know whether the Doctor believes, today, that some tests that are involved in our case, that were given some time ago, may or may not have been valid. The issue before us is whether that

information is required to be submitted to the union in processing the grievance so that it and not somebody else, not the company itself, so that the collective bargaining representative may make its determination as to whether it thinks it's valid.

JUDGE BARBAN: Quite apart from all that, Mr. Houghton, aren't you getting into the very thing that we were taking about this morning, and that is the merits of your controversy with the union? Which is whether or not, in one form or another, those tests are valid. I don't want to have to decide that—[98] that if I do, it might take me much longer on this hearing than I presently am determined to stay. The question you asked goes to the heart of the merit—of the problem between you and the union, but not at all to the merit of the problem before me.

MR. HOUGHTON: There had been some statements or allegations on the record that, in one way or another, I think tended to show, I think, the test was not valid. I would agree with you that whether the test is valid or not is not really the issue before you. And I think that the witness's response to, could he, with the information provided, reached an intelligent conclusion in that regard, is all that we need. We know that with that—

JUDGE BARBAN: You've had his answer.

MR. HOUGHTON: Yes.

JUDGE BARBAN: All right, then I'm going to sustain the objection and you may go on. By the way, Doctor, because I didn't retain it clearly in mind, what was the information you had that you said was enough? For you to make a judgment.

THE WITNESS: I had the validity study.

JUDGE BARBAN: Mr. Houghton, which exhibit number is this? Would you correlate for me?

MR. HOUGHTON: Exhibit 13.

JUDGE BARBANS Doctor said he had the validity study, which exhibit is that?

[99] MR. HOUGHTON: Respondent's Exhibit 13.

JUDGE BARBAN: Thirteen. Doctor, what else?

THE WITNESS: That would be sufficient in and of itself. And I also had information that gave me the background of what had gone on thus far in the arbitration case. I had the initial opinion by Professor Jones of the arbitration decision. I had the one letter, I'm not sure what exhibit that is, that Mr. Houghton had written about the information—about not releasing test information itself. But attached to that letter was detail about how the scoring was carried out—how the statistical weights were derived. Those are the major elements of what I had.

JUDGE BARBAN: Was that General Counsel's Exhibit 8, that last?

MR. HOUGHTON: I think he's referring to—

JUDGE BARBAN: Attached to eight is an explanation of battery weight, loss or items on Minnesota paper form board test and EPSAT test, is that what we're talking about?

THE WITNESS: Yes.

Q. (By Mr. Houghton) As I understand your testimony, Doctor, the only other items that you utilized in addition to what you just explained to the judge—were the test manuals? A. I obtained the test manuals from Mr. Roskind later on and just looked through those very carefully.

Q. And these are the documents, you explained, would be available [100] in any library? A. Yes.

Q. Did you have the tests themselves? A. No, I didn't.

Q. Did you have any need for the tests, themselves? A. I didn't feel I did.

MR. HOUGHTON: I have no further questions.

JUDGE BARBAN: General Counsel?

MR. CIARAMITARO: May I have a few moments, your honor?

JUDGE BARBAN: Yes.

CROSS EXAMINATION

Q. (By Mr. Ciaramitato) Doctor, a question about these test manuals that you used, did those test manuals that you looked at—referred to—do they refer to any particular job? For example, the job involved in this case, instrument man, being the Detroit Edison Company? A. No, they did not. They refer to a variety of jobs in unnamed companies, where studies had been done.

Q. I may have missed some of this. But some of the things that you go to in a validity study is a job analysis, is that right? That's one of the items? A. Yes.

Q. What would that be? Somebody would go down and watch what a particular job classification does on a typical day, write it all down? [101] A. Well, quite frequently. They would observe them and take notes, as you say and that would be interviewed—interviews with a number of different incumbents, sometimes they might even ask incumbents to comment on ways that they might screw up on the job or ways that they might be unusually effective.

So there are a variety of things—kinds of information, data, that would take place.

Q. Then, after that job analysis, that information gath-

ering is engaged in, somebody gets together to pick out what are deemed to be the very key points on this job? A. I don't think they would tend to narrow it to such a degree. They would try to include as much of the job as possible.

Q. But from this study, the gathering of this information, you try and set forth some sort of criteria, is that right? A. That's right, yes.

Q. And after you get—make these criteria, whoever does it, then it's fixed in his mind, do you try and formulate some sort of test that will draw out—that you think will draw out these criteria, determine whether these criteria will be met with a particular test. A. I'm not—you first try to develop a rating scale made for job performance based on this criteria, so the supervisor can describe incumbents on this various criteria. And then, [102] usually, a psychologist or someone who had been working in the area of personnel procedures, would choose some test that would seem to be—that he might guess might be predictive of success.

Q. When you say choose some test, you are referring to some pre-existing test, or would it be some test that that person would himself make up? A. People go both directions on that. Sometimes they do indeed make up tests and try them out. More frequently they would use tests that were already published.

Q. And these tests involve questions, is that right? A. Yes.

Q. So there is a selection of questions. Isn't it possible that sometimes, in formulating a test, you will use some parts of a pre-existing test and then make up others to comply with a whole battery? A. That's right.

Q. You never saw the test, the EPSAT or the Minnesota form board test that they used in this promotional

case, did you? A. I saw the Minnesota form board many years ago.

Q. I mean the one they gave in this test. I understand that there are all kinds of different tests—Minnesota form board tests, different EPSAT tests, depending upon what use this is going to be put to. A. There's only one form to the EPSAT test.

[103] Q. There's only one form? A. There's quite a few forms of the Minnesota test.

Q. Now, the Minnesota form board test that was used in this promotional case, you didn't see the actual one that was used, is that right? A. No, I did not.

Q. Did you ever read any reports as to why the makers of this particular test, that was used in this test, asked the particular questions they did ask. Somebody thought up a question, but did you ever see any reports as to why the person thought up the question and put that question in the battery of test that was given to the instrument man in this case? A. The engineering physical science aptitude test manual was based on a rough analysis of the kinds of knowledge and aptitudes that are believed to be important in engineering and physical clients. So they try to sample these six areas that they thought were important.

Q. So you read studies as to the general category of engineering and physical sciences. But you didn't read anything particularly related to instrument man B classification at the Monroe powerplant of the Detroit Edison Company, is that right? A. Roskind has provided me with that key.

Q. He covered that? A. Yes.

Q. In that study, does it say why those questions were used? [104] —were, in fact, used? A. No.

Q. Earlier, in your direct testimony, you were asked to prepare the term validity and job related. And then you said that job related was a broader term, as I guess you use the term, what do you mean it's a broader term? How

is job related different than the way you've been using validity? A. I think some things can be said to be job related though not necessarily be shown to be job related in a statistical study. An obvious example, I guess, would be that—I think medical school education would be related to the job of being a physician, but I'm not sure that I would talk about medical school education being valid, necessarily, to be a physician. It's just, you know, necessary. So I think that job related term can be broad in that it connotes a number of other kinds of prerequisites.

Q. Okay, now let me ask you this question. As you have been using the term, is the meaning of validity included within the meaning job related? A. As I've been using the term validity it is one important part of job related.

Q. Okay, so it's a part of, although not quite as broad as job related? A. Yes.

Q. I'll ask the reverse of that. Is the term job related [105] included within the meaning of the term validity? What I'm really driving at—I'm sorry, I'll let you answer the question. A. Well, a valid test in the sense that we've been talking about it is—it's a sufficient requirement to establish job related. Not always a necessary requirement, but sufficient.

Q. Isn't it possible that something can be job related, as we have been using that term, in the broad sense, but not validity in the statistical sense, as you've been using the term? A. That's possible.

Q. Okay, it would also be—would the reverse be true, that something may be valid or have validity in the statistical sense that you've been using the word, but not job related? A. It would not be.

Q. That's not possible? A. No.

Q. And when you made evaluations of the various information given to you, you were concerned with validity, right? Yes.

Q. You were not really concerned with job relatedness, is that right? A. Well, I was concerned with validity because it meant job related, so I was concerned with both. But job relatedness is an indirect consequence of validity.

Q. In so far as validity is encompassed within the broader term? [106] A. That's right.

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A. There are several different forms.

Q. Did you say EPSAT was all the same? A. It's my understanding they're all the same.

Q. You mean the same questions are always there? A. Yes.

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[108] JUDGE BARBAN: Doctor, I have certain problems. One, the EPSAT test is that a single fixed test? Now I understand that there are different series, but they don't change. For what range of activities are they used to determine whether employees will perform satisfactorily? Is there a fixed type of activity?

To go back with you, I assume you wouldn't use it to determine whether a man was going to be a good doctor, or maybe you would.

THE WITNESS: It might be okay.

JUDGE BARBAN: You mean it could be used for any activity [109] —to determine whether a person would be a good lawyer, a good doctor, a good engineer, a good industrial psychologist?

THE WITNESS: I would not use it unless I had established the validity for those particular purposes, but it does, apparently include some vocabulary knowledge, general science knowledge, comprehension of mechanical principles, and it's possible that if I did a study of, say, successful graduation from medical school, that EPSAT scores would show some modest relationship.

JUDGE BARBAN: Then if I understand you, and I'm beginning to get some insight, maybe very slight, but some, whether or not EPSAT or any similar test has validity would have to be determined by practical testing on people within the area we're talking about. You want to determine whether EPSAT was of any value with respect to doctors, you would have to give it to doctors for a while and see what happened?

THE WITNESS: Yes, that's right.

JUDGE BARBAN: Do we have any evidence, or do you have any evidence that EPSAT was ever administered to people doing the work or the kind of work involved in this case?

THE WITNESS: I don't have any evidence of that sort. I don't remember the manual sufficiently well to be able to say what other settings were cited in the mechanical field.

JUDGE BARBAN: Now there was something else you said that now becomes a little clearer to me. You said you had never seen the EPSAT test and yet you were sufficiently satisfied, [110] without seeing it, that it had validity in the situation involved in this case.

I have to assume, unless you explain to me otherwise, that you are then relying on somebody else's evaluation, who did see the test. Because I can't conceive of a situation in which you can make a value judgment of the value of the test, unless it has been seen—somebody has seen it.

THE WITNESS: I assume it was indeed used by Dr. Roskind in the manner described in the validity study. And the information in the validity study does give a correlation, the coefficients between scores in the EPSAT and criteria of performance in the instrument man job. So that evidence—that correlation is sufficient evidence for me. And my knowledge of the EPSAT is a published test.

It isn't something that somebody put together on an old piece of brown paper. It's a reasonably well known and established test.

JUDGE BARBAN: This leads me to my last question along this line, because this is the inference I had drawn. And if it's a bad inference I would like you to tell me.

I had come to the conclusion that your conclusion as to the validity of this test—it's value—was based on someone else's analysis. That is the validity analysis that was submitted to you, is this correct?

THE WITNESS: That's correct.

JUDGE BARBAN: So that if the validity analysis submitted [111] to you was not, itself, valid, then your conclusion would be not valid. And this is not critical at all. I am just exploring the steps that are involved here.

Now I want to ask you something else. I don't know exactly how to ask it and I am cautioning all counsel that I'm going afield from anything that any of you have asked, so I'm very sensitive to a quick objection.

Up to this point, in your testimony for respondent, and quite properly so, has been directed to the validity of the tests for the respondent, for the company's purposes. That is, as I understand it, they are interested in the test because they want to know whether or not the prospective employee is going to do well if he's put in the job.

You're shaking your head in the affirmative. That means you agree so far. I have a slightly problem and that is whether the employees, generally represented by the union, are entitled to information about their working conditions. Do I gather from your testimony, that you have not, up to this point, been concerned with that factor at all?

THE WITNESS: I guess that's what you gather—correctly I believe. I don't think I would necessarily—

JUDGE BARBAN: I wouldn't ask this question of anyone, but you are an industrial psychologist and I assume you have considered the effects of working conditions from the employees' standpoint.

[112] THE WITNESS: I don't understand. Do you mean physical surroundings? Physical conditions?

JUDGE BARBAN: Let me give you this as an example, because I've had to deal with it. In a somewhat related problem which dealt with piecework pay, and in which the employer had done studies of the employees' activities, somewhat similar to that you describe—except yours is on a much more refined plain. As a result of the employer's studies, the employer established a formula. And in the particular situation in which I am thinking about, the employees didn't know what that pay formula was. It was not revealed to them, and in this particular situation, the employees were much agitated that they were being paid on a formula they didn't understand. Now that's what I mean by part of their working conditions.

And I—my question to you is—your testimony is not addressed at all to the need of the employee to know.

THE WITNESS: It would be my contention, I believe, while I would generally be in support of anything that could be done to explain to employees what the rules of the game are. In other words, how do you go about looking into another job? What do you have to do to get that job? What is this test like in terms of just general nature of it. So, in other words, rules and fair play that relates to treating people humanely rather than in an exploitative way. I would see not giving any formula, concerning the pay formula as extremely self-defeating from the [113] standpoint of any management that did that. Because one of the basic principles of motivation is that the

more people know how to get what they want, the better off they might be and the more effort they might put forth. So I don't believe in secrecy as a policy, or anything like that. I guess I did not give that a great deal of attention.

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REDIRECT EXAMINATION

Q. (By Mr. Houghton) Doctor, so that I'm sure that I understand some of your last responses, I'd like to try and relate your answers to the issue we have before us today.

For example, in making a determination as to the validity or appropriateness of this test, you would need to know such things as scoring formula, would you not? A. No. As to the what?

[114] Q. Scoring formula? A. You mean making a decision about what?

The validity of the test itself. A. No.

Q. How the tests are scored? A. No, I wouldn't need to know that. As long as I knew that they were related to job performance.

Q. Now, do you recall, Doctor, when I spoke to you earlier and I asked you to assume you were retained by a union and the union said "our boys have to take this test battery and we're concerned as to whether or not—if they had access to the tests themselves, it would in any way assist us in representing the people, if it would in any way assist us in understanding the test. If it would in any way assist us in determining whether the test is valid or not".

Do you recall that? And what is your answer to that question?

MR. CIARAMITARO: Objection, your honor, it calls for a conclusion and the conclusion is not within the witness's expertise and it is irrelevant.

MR. HOUGHTON: I believe it is within the witness's expertise. It's certainly within this man's expertise as to whether or not having the actual tests would in any way be a guide to further understanding the job or the way in which the test is administered. Or whether the test is a good test or [115] a bad test or a valid or an invalid test.

JUDGE BARBAN: That wasn't your question if I understood it. I thought your question was whether or not having this—having the test itself would be necessarily relevant to the union's ability or right to represent people.

Well then, I'll sustain the objection because I think that that's not the question.

MR. HOUGHTON: I don't believe that's the question I asked.

JUDGE BARBAN: I know. I'm saying that—strike all that. Would you repeat your question?

My question is this, Doctor. In your opinion, would the union's having copies of these actual tests, in any way assist the union or its experts in understanding whether or not the test is, in fact, valid?

MR. CIARAMITARO: That's what I'm objecting to. That question which calls for that opinion as to whether it would be beneficial, not for him or for Edison, but beneficial to the charging union and its agents. I don't think that is an opinion he could give.

JUDGE BARBAN: I'm having trouble. Read me the question again.

(The pending question was read by the reporter.)

JUDGE BARBAN: I will take the testimony as opinion evidence from a person qualified.

THE WITNESS: My response then, would be that I would not [116] regard the test as helpful to me in making that judgment.

JUDGE BARBAN: But, Doctor, is that because you have the analysis that somebody else made? I thought that was your previous testimony.

THE WITNESS: No, if I were in the position of wanting to know about the test I would ask for the statistical information rather than for the test itself. I would not rely on my judgment simply from looking at the test.

JUDGE BARBAN: But you are, as I understand, discounting the value of looking at the test at all. That was the question.

THE WITNESS: Right.

Q. (By Mr. Houghton) In other words, Doctor, so we understand. Assume you were asked to pass upon the validity of this test battery. Someone gives you all the information and the Edison has already given you—and then says "would you like the actual tests themselves".

As I understand your testimony, you would not need those tests. A. That's correct.

Q. Now let's contrast that and if I may tell what may be a bizarre example, would having those actual tests in front of you—in order to formulate your opinion—be any more valuable than, for example, having a copy of Life magazine? A. That is somewhat bizarre, but I guess I would not find that any more helpful.

[117] Q. In other words, it's irrelevant to what you're trying to do, isn't it? A. In terms of the kind of validity that we're talking about, that's right, it's irrelevant.

Q. Now I want to make sure we understand this. We're talking about psychological aptitude tests here. Now if,

for example, we had a test that was designed to measure job knowledge. I take it your answer might be different?

A. Yes, it would be different.

Q. And in a job knowledge type of measuring test, you most surely would need to see the text? A. Yes.

Q. Right. There was one other concept I wasn't sure we had fully in mind, and that's this example. The concept, rather, of a cutoff score. If, for example, someone were to give you the actual tests, would you be able to look at those tests and say these cutoff scores should be such and such? A. No, I couldn't.

Q. How do you determine what the cutoff score is? A. You'd have to have a validity study and you'd need to contrast successful performance on the job with less successful performers and then compare the test scores that they had received, in order to establish a cutoff point.

Q. And to determine that cutoff score, as I understand it, you'd utilize a scatter plot of some sort? [118] A. Yes.

Q. And then what would you do once you had that? A. Well, I would generally try to maximize the number of correct predictions of the test scores so that I would have the cutting score set at a point where selecting persons would result in the least loss of potentially good persons and rejected persons—I should have said it just the other way around. And selecting persons would result in a minimum number of persons who failed. And rejected persons, at the same time, would result in the minimal reject of persons who might otherwise have been successful.

Q. Did I understand that you make that type of decision without reference to the test itself? A. Yes.

Q. I don't think we need to go through this validation study in all its detail, but I wanted to make sure we weren't under any misunderstanding. You were asked a question as to whether or not you knew if this test battery had ever been used in connection with the instrument man B battery job. As to whether it has or not and as to

whether it's been correlated in the job, don't you get that information from the validity study? A. It tells me in the validity study that this can be the case. I don't have an affidavit to justify that inference, but I certainly would make the assumption that everything that is portrayed in here is true.

[119] Q. Now assume, Doctor, you wanted to go the next step behind this validity study. Do I understand you that to take that step you might take this step, but you might go to the supporting information that made up the validity study? A. Yes. I'd like to see, perhaps, more detail, tabulations, statistics and perhaps more of the correlational data, but that would be my next step.

Q. Now the supporting document that would be behind the validity study, that would be not—would include the tests themselves? A. No.

Q. You were asked at one point during the cross examination, whether you would be at all concerned in finding out why the particular questions that were used in the test were used? Is it important to you in rendering or making your validity study, why a particular question is used? A. No, it isn't.

MR. HOUGHTON: I believe that's all I have.

MR. CIARAMITARO: One or two questions, your honor.

REDIRECT EXAMINATION

Q. (By Mr. Ciaramitato) Doctor, if one were to give a different battery of tests—that is different questions—for the same purpose as involved in this case, promotion to an instrument man classification. Would you expect that a validity study would come out identical to the one that we do have. Or [120] would you expect differences in the results of the study? A. I would expect some differences?

Q. So the result of a validity study will depend on what battery of what questions are asked, is that right? A. That's right.

MR. CIARAMITARO: That's all.

MR. LEWIS: No questions.

JUDGE BARBAN: Doctor, if you will, put up with me just a little bit more. I am not at all sure whether there's been some change in position here or whether I'm not astute enough to understand what's going on—the latter is quite possibly true.

I originally understood you to tell me that basically you did not need to see the tests themselves because you were relying on the evaluation of the tests made by someone else. Is this correct?

THE WITNESS: I would usually—well if I did not know the evaluation made by someone else, I would still not find tests themselves useful in trying to evaluate whether they were any good or not. The only kind of information that I would find helpful would be a statistical evaluation, or knowledge that might be gained from the test manual and, I guess—I'm not sure I would ever really feel that I could gain from examples of the actual tests.

JUDGE BARBAN: I now understand you to say that what you [121] are telling me is that you're more interested in the results of the past use of the tests than you are of the contents of the tests?

THE WITNESS: That's right.

JUDGE BARBAN: Do You—and are you also telling me—because this is a question that was asked you—that therefore, this is not exactly the question that was asked you, but it's a question that troubles me. Are you also saying that therefore, the contents of the tests, could not

be of any value to a union representative in representing his people who were concerned by the test?

THE WITNESS: I think I'm saying that, yes. I would not see that as anything other than a kind of curiosity. I mean satisfying of one's own curiosity. I wouldn't see it as a way of evaluating the wisdom of the use of that test.

JUDGE BARBAN: Going back to another matter we discussed earlier. The need of the employees to know—that does not weigh in to this situation at all, then, from your point of view?

THE WITNESS: Not in this instance.

JUDGE BARBAN: Would you explain why not in this instance?

THE WITNESS: Well I don't mean this Detroit Edison, I mean not in this instance in terms of the whole picture of psychological testing.

JUDGE BARBAN: Since I'm taking opinion testimony from [122] you, here we have a group of people—leave Detroit Edison out of it, although this is apparently the situation here—we have a group of people who are seeking a promotion which, apparently is guaranteed to them by the union contract, who are complaining that they weren't given the promotion. And the union contends here that they can't find out the details why, one of the details being the tests that were given to them.

And I am taking from your testimony that it is not—it would not be necessary for the union to have this kind of information to represent those people.

THE WITNESS: That's correct. I would—I think the problem will be—well we couldn't give the test items to potential examinees, because then the tests would quickly become worthless.

JUDGE BARBAN: Is that the reason for your—I'd like to have your reason.

THE WITNESS: That would be the major reason. The security of the test demands it not be part of the public domain.

JUDGE BARBAN: That was the reason Mr. Houghton gave quite early in the hearing—basically if the tests were revealed, that its usefulness would be at an end. Is that the basic reason for your answer to me?

THE WITNESS: That's the basic reason. And a supplementary comment would be that being aware of the kinds of items in the [123] tests, the general nature of the tests' framework would be useful. But this would not depend upon giving the test itself—the actual content of the test to anybody.

JUDGE BARBAN: Thank you very much. Any questions?

MR. CIARAMITARO: No, your honor.

MR. HOUGHTON: Just one.

FURTHER REDIRECT EXAMINATION

Q. (By Mr. Houghton) At your last answer you said it might be helpful to have types of questions. Did you mean helpful in satisfying this concept of curiosity? A. From a public relations example.

Q. That's what you were referring to? A. Yes.

MR. HOUGHTON: That's all I have.

JUDGE BARBAN: You're excused. Thank you very much.
(Witness excused.)

JUDGE BARBAN: Off the record.

(Discussion off the record.)

JUDGE BARBAN: Back on the record.

MR. HOUGHTON: I call Dr. Roskind.

DR. WILLIAM L. ROSKIND

a witness called by and on behalf of the Respondent, being first duly sworn, was examined and testified, as follows:

DIRECT EXAMINATION

JUDGE BARBAN: Please be seated.

[124] Q. (By Mr. Houghton) Dr. Roskind, your full name, for the record? A. William L. Roskind.

Q. Where do you reside? A. 27310 Aberdeen, Southfield, Michigan.

Q. Are you employed? A. I'm employed by the Detroit Edison Company.

Q. What is your position with the company? A. I am the director of industrial psychology.

Q. How long have you held that position? A. Since September the third of this year.

Q. Prior to the September third, what was your position with the company? A. I was the acting director for three weeks. Prior to that I was the administrator of psychological services.

Q. Back at the time the tests were given—that are involved in this case—what was your position with the department? A. I was working with this department as a research psychologist.

Q. Did you yourself personally take part in any way in the administration of this particular test battery? A. I was in on some of the preliminary meetings relative to the development of this test battery and worked on some of the research and suggested the criterion rating scale that was used in this study. And helped with some of the statistical analysis.

[125] Q. Is that the statistical analysis that was embodied in the validity study? A. That's correct.

Q. Do you yourself have knowledge as to the way in which this test is administered, how it's scored and that sort of detail? A. Yes, I do.

Q. And do people work for you who have access to the actual company records involving the administration of this test? A. Yes, the individuals who administer this test, work with the records, report to me.

Q. All right, now I'd like to look back—and remind you Dr. Roskind, ask you, first of all, when were psychological aptitude tests first used in the company. When were they first used. A. They go back probably some forty years to, I think, 1932, when one of the first psychological aptitude batteries was used in the selection of men from one of the trades jobs.

Q. Now back in the 1930's, was that prior to the time the union represented employees of the company? A. I don't know what time the union began its representation of the employees.

Q. As a note here, we'll refer the arbitrators to the collective bargaining agreement which sets forth the certification dates of the various units and they began, I believe, in 1941.

JUDGE BARBAN: I think you were referring to me as the [126] arbitrator. I am not. Go ahead, I'm just a—

MR. HOUGHTON: It's getting late in the day.

Q. (By Mr. Houghton) Looking at the particular job we're involved with today, instrument man work. When were psychological tests first utilized for entrance into that job?

MR. CIARAMITARO: Objection, your honor. I've left several questions along this line. I'm not sure—I doubt and I believe it's irrelevant as to when psychological testing began in general or in specific in respect to this case. When it began is irrelevant.

JUDGE BARBAN: Was your last question concerning instrument men?

MR. HOUGHTON: Yes, this particular job, this work.

JUDGE BARBAN: Objection is overruled.

THE WITNESS: As a part of the study on the selection of powerplant operators, it became apparent that many of the operators were moving into the job of instrument man. And so at the same time that that study was investigated back in 1958, this test battery was developed—instrument test battery was developed in use for the selection of instrument men.

Q. And it's been used since that date, to this time?
A. That's correct.

Q. You've stated that the actual tests themselves, in this case, are kept in confidence. I'd like for you to explain to me, for example, how these tests are utilized by the Edison [127] Company. For example, if you proposed to give this test battery to certain of these prospective applicants, what measures are taken to keep the tests confidential? How do you go about keeping copies of the tests and giving them to the people to be administered?
A. When individuals are scheduled to take the tests a sufficient number of copies of the tests are taken out of a locked file and taken into the testing room where the applicants are already seated and standardized instructions are given to the applicants or employees as to what is expected of them during that testing situation.

The instructions for a specific test and samples are given to them so they know what kinds of problems they're going to be working. While they're taking the tests, tests are passed out to each of the individuals and as soon as the test is over with, as soon as the standard time is up, the tests are collected and taken out of the testing room and refiled in a locked drawer.

So that—and there's an accounting system whereby we keep track of the number of tests we take into the room and we take out. A test is collected from each person.

Q. What would happen, for example, if I had come to you and said I'm a supervisor of the instrument men and I'd like to see what this test is you're giving to my men. Can I have a copy. [128] A. Well, I'd ask you why you wanted to take a look at the test and what was it you were interested in and discuss the test and the aptitude that the test measures, with you, to help you understand it. But, no, I would not show you a copy of the test.

Q. Are these tests disseminated to management? A. No, management of the company does not have access to the tests.

Q. Are you familiar, Dr. Roskind—and by the way, digressing for a moment, I don't think I can establish this. Do you have a doctorate in the field of Psychology? A. Yes, I do.

Q. Are you familiar with the ethical standards of psychologists? A. Yes, I am.

Q. Would you tell me where they come from? Who they are applied to? A. The ethical standards were created by the committee working for the American Psychological Association in an attempt to protect the general populace for whom psychologists work and also to protect the American Psychological Association of Practising Psychologists from unethical behavior.

Q. Now are these standards binding on all psychologists? A. Yes, they are.

Q. Are they the same throughout the country? A. Yes. [129] Q. Within the Detroit Edison Company, Doctor, were you the one who made the decision that these particular tests should not be given to the union? A. I'm the one that's responsible for that decision.

Q. And will you tell us why you made that decision in this case? A. From one standpoint we have the ethical standards which forbid the dissemination of psychological aptitude tests to laymen or to people who are not professionally qualified to use the tests. And second of all, we have the problem, the very, very practical problem of test

security to the extent that if the tests were disseminated and if they became general knowledge, employees who were interested in bidding on the job of the—the instrument man job, then it would destroy the validity of our selection process.

And, if we weren't aware of it, we would be selecting people for that job, who stood, possibly very little chance of being successful on that job. And, furthermore, it would be inappropriate in terms of all the other people who were using those tests. Those tests are used throughout the country and it would be unfair to anyone who's gone through the trouble of validating a test battery including those tests.

Q. To clear up one point, this EPSAT test that we refer to, is there only one form of the EPSAT test? A. There is only one form of the EPSAT test. It does not [130] have any parallel forms.

Q. What about the Minnesota form board test? A. The Minnesota form board has several parallel forms, equivalent copies of the tests which serve in each other's place, but do not have identical items on each test.

Q. If you validate, for example, the test sample was validated in this case. Do I understand you to say you could then substitute some other form of the Minnesota form board test and give it to Edison employees for other evaluations? A. Not exactly. You'd have to do some additional research to make sure it was operating as to parallel form. It would generally accepted as a parallel test, but it is not exactly the same. You'd have to re-normalize the data. We establish norms, not additional research.

Q. With respect to the Edison, you use only one form of the form board test? A. That's correct. Every person that takes that test for that job takes that one form of the test.

Q. To make sure we understand this concept of validity, supposing you have a job—and I'll call it a crane operator—and you read some articles in the field of say, a perfectly wonderful test that's been developed to determine whether people are going to be good crane operators, do I understand that even though you would have that literature, before you would actually give that test to Edison people, it would be necessary to [131] validate that test with respect to the particular job? A. That's our policy within the company. We do not accept validation studies done by other organizations, for use in our own company. Because to a large extent, job titles will carry the same title from company to company, but they may, in fact, have critical incidents, critical facts that will be different. And without a careful analysis of the job and a statistical analysis to see whether, in fact, that particular test will predict successful performance on that job, it would be inappropriate to use that test as far as our people—

Q. All right, now let's look at this validation study that the Edison Company performed with respect to this test battery and I believe it's Respondent's Exhibit 13.

But let me ask you this question first. In preparing the validation study, someone sits down and says all right I've got to determine whether this test battery is valid with respect to this job.

Would it in any way be necessary for that person to utilize the actual tests themselves? A. No, it would not.

Q. What would he do? A. The individual would look at the validation study itself to see the relationship.

Q. Excuse me, I'm going a step further. I'm saying there [132] no validation study. Someone is now going to sit down and put together a validation study to validate the test in the first instance. In that situation, would he, in any way, have to utilize the actual tests themselves? A. No, that wouldn't serve any purpose. It would be more appropriate to look at the various test manuals and to go

through the literature and look at other research that's been done. Assuming that you were about to develop a test battery, you would have analyzed the job. You would have some hypothesis about which aspects of the job, which aptitudes can be measured, which aptitudes would, in fact, predict successful performance on the job.

You would then go to the catalogues of tests by research and so on, and look for tests that would measure the aptitudes that you were interested in, the aptitude that you hypothesize is relevant to that job.

Q. So we understand, assume again I have this crane operator job, assume hypothetically there are a hundred different aptitude tests available? I suppose I could start with the first one and go through all one hundred and perform validation studies for each of the tests and then pick the one the most appropriate and suited to my purposes. A. That would be very inefficient way of doing it, going through each one, one at a time.

Q. In layman's terms, do I understand you to say in determining which of those tests you want to validate, you use the [133] test manuals and attempt to isolate those tests which you think will be predictive. A. That's correct, yes.

Q. And then, before you actually decide to use them, you do in fact run a validation study? A. You run a complete research program to determine in fact whether those tests will predict performance on the job, before you actually start using those tests for selection.

Q. And, again, in running a complete research form, the complete research task, would you have any need to actually use tests themselves? A. You would use the test in terms of administering to people but it would not be necessary for you to sit down and look at copies of the tests other than to satisfy your curiosity.

JUDGE BARBAN: The point is, as I understand it, you validate by giving the test to people and checking those people statistically, or am I wrong?

THE WITNESS: If I may rephrase that, I'd like to explain to you what it is that we do. If we have—

JUDGE BARBAN: That's what counsel seems to be asking.

THE WITNESS: If we have a number of crane operators working for us at the present time and we want to develop a selection battery for selecting future crane operators, we would analyze the job of crane operator and we would develop a rating scale and evaluation to find out who it is that can do [134] do the job well, who can do it on an average level of performance and who is actually doing the job so poorly that if we could, we would prefer not to select any additional men like those who are performing poorly. Having that rating scale and being able to designate which are successful crane operators, averaging poor operators, based on actual performance on the job, we would ask that group of men to come in and take this battery of four or five or six aptitude tests that we hypothesize will, in fact predict their performance.

We might administer four or five tests and, in the research discover that really only two or three of those tests will predict performance. And we made a bad guess on one or two or three of those tests.

JUDGE BARBAN: You would give all of the tests to all of the men?

THE WITNESS: All the tests. Say if we picked out six tests, we would hypothesize would, in fact, produce performance. And in running one of these validity studies as is described in this exhibit number R-13, we would determine which tests actually do predict performance. Which ones will, in fact, predict the high performance individuals and which the low performance.

And then, those tests, but only those three that in fact did predict performance, would be used in the future. And after a few years a follow-up study would be done to

see if the new [135] people would have been selected using that test battery and are in fact performing the job successfully.

JUDGE BARBAN: Originally those tests on which the poor performance did poorly and tests on which the good performers did well, would be your predictive tests. Is that a correct point?

THE WITNESS: Those tests on which the poor performers did poorly and the high performers did well, would be the tests that we would select for use in selecting batteries for the future.

JUDGE BARBAN: Thank you. Mr. Houghton, I'm very sorry to have interrupted, but I wanted to get some detail.

MR. HOUGHTON: That's entirely all right.

Q. (By Mr. Houghton) Mr. Roskind, so I understand this, again, from a layman's standpoint. If you were to tinker with test batteries and try and make a test battery more predictive and you find, for example, one test was actually exercising a negative function, that it was counter productive and if it was depressing other tests that might be successful predictors, you then eliminate the bad test, is that right? A. That's correct.

Q. Is this sort of thing what's encompassed in making the validation study, in determining what is and is not an appropriate test battery? A. Generally yes.

[136] (A document was marked Respondent's Exhibit No. 20 for identification.)

Q. I hand you what has been marked proposed Employer's Exhibit No. 20, and ask you if you can identify that? A. This is a copy of the ethical standards of psychologists.

Q. And are these the standards that are in effect and have been in effect at all times pertinent to this case? A. That's correct.

Q. And do these standards contain the ethical standards you referred to earlier, regarding the release of testing information? A. Yes, they do.

Q. Which standards are those, by number? A. In terms of the principle of test security, that's principle number 13 of the ethical standards.

Q. And what about test interpretation, what principle is that in? A. That's principle number 14.

* * *

[137] Q. (By Mr. Houghton) Dr. Roskind, with respect to the results of tests, when employees take tests and they have the results recorded in the company records, what efforts, if any, are made to keep those results confidential? A. Those records are locked in a locked file cabinet in our office and only several individuals who have a need to know have access to those records. The scores are considered highly confidential and are not discussed with anyone that does not have specific need to know. And that's a very limited group of [138] individuals.

Q. Who would be encompassed in that group? A. The people that work directly for me have access to the actual scores in terms of doing some of our research work. Two, the people who administer the tests, and one or two of the psychologists that work with us. But no-one outside of our group has access to the actual test scores.

No-one other than professional psychologists.

Q. All right, if I were a supervisor, a member of management and I came to you and I said I want to see how my people scored, give me their test scores, what would you require? A. It's not a question of requiring anything. You would not have access to the actual scores by names of employees. Regardless of whatever reason you gave me. The only people outside of our group that get any information at all are the interviewers, who are partially responsible for making selection decisions. And all they get is a general evaluation of the person's performance.

In most cases, as we're talking in this test battery, either the individual has met the standard for the test battery or the individual has not met the test standard.

But in terms of the numerical score or the raw scores or the scores on the individual tests, the test battery in parts, that information is not given.

Q. What if I came to you and I had a signed release by three [139] of my employees, giving you written authority to give me the actual test scores, what would happen? A. I don't think I would accept that either, Mr. Houghton, if the employees came to me and told me that they had some reason why they wanted you to have their test scores and if they signed a release that I had prepared for them, then I would, in fact, give you their test scores if that's what they wanted.

But outside a signed release I could not do it. I would be opening myself up for a suit if the test results were misused. And it would be against the ethical standards of psychologists.

We found that it's actually destructive in a company. When this occurred many, many years ago, before this practice was put into effect, several individuals whose test scores were known to themselves and other individuals that worked with them, were harassed so much and called stupid and dummy and so on, to the point where they actually left the situation. They quit their job with the company because of harassment.

In order to protect employees from that type of harassment, we will not give the test scores to anyone at all without a release of that individual, if the person has a need to know.

Q. I'd like to turn to another area, Dr. Roskind, and that has to do with the administration of the tests themselves. Are the employees given any initial instructions or

reference [140] guides when they sit down and take these tests? A. When an employee sits down or an applicant sits down and takes the tests, they are given ground rules as to how we operate. They are told approximately how long the test battery is going to take, the kind of tests they'll be taking. They are asked whether they have any questions or problems, or where they are parking their car. We don't want people starting a test under any unusual or additional stress.

And then they are told that the tests—how the tests will be used, how the results will be used and that is that the test results will be compared to other individuals who already took the test in the company, and compared to their performance—that they may be used in an additional selection process. And most important of all, that their test results will be kept confidential by our group. And that those test scores will not be released to anyone. Only an interpretation of the overall performance.

(A document was marked Respondent's Exhibit No. 21 for identification.)

Q. Dr. Roskind, I hand you what is marked Respondent's Exhibit No. 21 for identification, and ask you if you can identify that for us? A. This is our copy of the introduction to testing that is read to all applicants when they come in and sit down, and employees, when they come in and sit down to take the test. And, the point [141] that I mentioned earlier, the statement that the test scores are confidential, relates to this particular principle where we are able to give people who have need to know an interpretation of the overall performance, but not the numerical score. That's what the applicants or employees are told.

Q. And are these the instructions that are told to the applicants taking the instrument man test battery? A. Yes, they were.

MR. HOUGHTON: We would offer the exhibit.

MR. CIARAMITARO: No objection.

JUDGE BARBAN: Mr. Lewis, any objection?

MR. LEWIS: I don't think so. Is this the same one that was put in at the other?

MR. HOUGHTON: Yes.

MR. LEWIS: No objection.

JUDGE BARBAN: Respondent's 21 is received.

(The document heretofore marked as Respondent's Exhibit No. 21 for identification was thereupon received in evidence.)

Q. (By Mr. Houghton) All right now, in terms, Dr. Roskind, of scoring, let's just assume a group of people sit down and take the test battery, what types of answers are they putting down on paper and how are these answers scored? A. After looking at the question in the test battery, or the tests themselves, they read one of anywhere from two choices, [142] to one of the possibly five choices. And they select the choice they think is most appropriate for the question. Then they go to a separate answer sheet and mark that answer on the answer sheet with a pencil by marking an area between some dotted lines. That indicates the answer to that question.

Q. And then when one of these answer sheets is filled out and turned into the company, how do you go about checking or scoring such an answer sheet? A. A key designed for that test, produced by the manufacturer is placed over the answer sheet and the number of correct responses is counted. Prior to that the answer sheet is screened to see whether individuals have possibly marked

more than one answer to a given item. And in some cases an additional key is placed over the answer sheet to determine the number of wrong answers.

Q. Is there any subjectivity involved in the scoring operation? A. It would not matter who did the scoring of the answers. If they were done properly different individuals would arrive at the same scores. So we call that an objective scoring procedure rather than a subjective scoring procedure, when different people might evaluate it differently.

Q. Suppose I'm scoring this test and I find an employee has put down marks in two boxes for the same question. Am I supposed to try and decide which box he intended to blacken or how do you handle that? [143] A. The individuals that are taking the test are informed ahead of time that if they, in fact, mark two responses to one item that they receive no credit for that item. It's counted as wrong.

Q. And have you, in the past, Doctor, explained this scoring and its principles involved, to people? A. Yes, I have.

(A document was marked Respondent's Exhibit No. 22 for identification.)

Q. Dr. Roskind, I hand you what has been marked Respondent's Exhibit No. 22 and ask you if you can identify this for use? A. This is a copy of the answer sheet for the engineering and physical science test. We've been referring to it today as the EPSAT test.

Q. And is that the sheet upon which the responses would be recorded? A. That's correct.

Q. And that is an example of the actual scoring sheet for the test given in this case? A. This is an answer sheet that would be used, yes.

MR. HOUGHTON: We would offer it.

MR. CIARAMITARO: No objection, your honor.

MR. LEWIS: No objection.

JUDGE BARBAN: Respondent's 22 is received.

(The document heretofore marked as Respondent's Exhibit No. 22 for identification was thereupon received in evidence.)

[144] (A document was marked Respondent's Exhibit No. 23 for identification.)

Q. Dr. Roskind, I hand you what has been marked as proposed Respondent's Exhibit No. 23 and ask you if you can identify that for us? A. This is another answer sheet that is used with the revised Minnesota paper form board test. And it is an actual answer sheet that's used in practice.

Q. Now you say used in practice. You mean this would be an answer sheet that would be actually used when the test is given? A. That's correct.

MR. HOUGHTON. We would offer this exhibit.

MR. CIARAMITARO: No objection, your honor.

MR. LEWIS: No objection.

JUDGE BARBAN: Respondent's 23 is received.

(The document heretofore marked as Respondent's Exhibit No. 23 for identification was thereupon received in evidence.)

(A document was marked as Respondent's Exhibit No. 24 for identification.)

Q. Dr. Roskind, I hand you proposed Respondent's Exhibit No. 24 and ask you if you can identify that? A. This is a copy of an answer key for the engineering

and physical science test that I had prepared specially for this hearing. It is a replica of a key—in that it is not the [145] actual answer sheet that is used, but it is a copy of what the key would look like.

Q. And how is that key used by the company in scoring an answer sheet? Could you show us please? A. I don't have an answer sheet with me. The answer sheet is placed—the key is placed over the answer sheet. It can be lined up and then it's a simple process of looking through the key to the answer sheet to see which answers have been left blank in order to obtain a count of the correct responses to the items of the test.

Q. And is a similar type key used for scoring the paper form board test? A. Yes it is.

* * *

[146] CROSS EXAMINATION

Q. (By Mr. Ciaramitaro) Dr. Roskind, you've explained how the cover sheet is set over the test sheet or test paper. These are checked manually, I understand, by a checker? A. Yes.

Q. A human being? A. Yes, normally twice.

Q. Pardon me? A. Normally twice.

Q. Does the same person check it twice or does it go to somebody else to check? A. Normally it's checked by the same person.

Q. And that same person checks it twice? A. That's correct.

Q. And the result of his checking is recorded where? A. On a test record card, on the answer sheet itself.

Q. So the checker will put down how many right answers? A. I'm sorry. It is reported on the answer sheet itself and then a clerk—your question was where is it recorded?

Q. Right. A. It is reported on the answer sheet itself.

Q. Now looking at this example where the cover sheet is superimposed over the answer sheet? Check me, whether I'm right or wrong—on the examples that you have? Well, as I look at it, I can only see one possible for each question. If I look [147-A] through that hole I can only see one double-dotted line. Is that right? A. Yes.

Q. Now, you indicated before, maybe sometimes a person may give two answers to the same question. A. Yes, sir.

Q. How is the checker going to see that by superimposing the cover sheet over the answer sheet? A. Okay, I also stated that prior to placing the key on the answer sheet, the answer sheet is looked at to see whether or not an individual has, in fact, recorded two responses to a single item.

Q. Okay, so the checker will do that first before he puts the cover sheet over it? A. That's correct.

Q. Dr. Roskind, after the checker checks it the two times, is there ever any further review as to whether the checker made any mistakes? A. There are, from time to time, additional reviews, it is not a systematic procedure as such. If a question comes up the answer sheets are normally held for a year. And if any question comes up they can be reviewed.

Q. Has it ever happened, in your experience, where tests have been reviewed in this fashion? A. Yes.

[147-B] Q. Have mistakes ever been discovered? A. From time to time, yes. Yes, I guess, yes. We have to discriminate. First we make a count of one wrong or two wrong.

* * *

Q. Now the custodians of the results of the papers themselves, is it the psychology department? A. That's right.

Q. And then at the employment—someone, some employment department personnel wanted to know what the scores were, they [148] would have to go to the psychology department and request them, is that right? A. That's right.

Q. Assuming that person had been determined to have access, the psychology department would then give that information, is that right? A. The information would be given in terms of whether or not the person met the standards for that test battery or not, not the test scores.

Q. So even your own employment department isn't told the individual's test scores? A. That's right.

Q. And what if—and if they were to ask for a comparison between one individual and another individual. What—would you just say one got higher than the other? Or would you not say at all? A. Well we've had this conversation with them in the past and they understand that once we set a cutting score, people either meet the standard or fail to meet the standard. And, in which case, they don't ask us which of these two people got the highest score. They don't feel that our tests are such that it's appropriate to make that kind of comparison. If two individuals have the minimum necessary qualifications, then, in fact, we consider them both qualified. And the recommendation is such that these people are acceptable according to the test battery. [149] And so we do not make those comparisons for the empoyment department.

Q. So it's just acceptable and not acceptable? A. The term we use is acceptable and not recommended.

Q. So if an employee came up and said I can't believe that guy got a higher score than I did, you're not going to tell him both scores, you're just going say he got acceptable and you got not recommended. Is that right? A. Well, with the employee came in to see me I would sit down and go over that employee and give him a much more detailed analysis of his test performance and go into actual scores if that would be helpful, and show him where

his scores stand, compared to the norm group that we have. Whether he is high or low, relative to all of the employees who have taken that test. But not relative to any individual that has taken that test.

Q. Not only would you handle an employee that way, the same would go for the union, is that right, an employee representative. You wouldn't even go into some of that depth with an employee representative. Is that right? A. With the employee representative?

Q. Yes, for example, like Mr. Lewis? A. Not unless an employee had authorized me to do that.

Q. You referred to an experience same time ago—I don't know—you had a problem with people being harassed because their scores became known. Is that right? [150] A. That's correct.

Q. Now what group of people were being harassed, the people who flunked the test? A. Yes—by other people who had taken the test.

Q. These other people who harassed them were those the people who passed the test? A. Yes.

Q. So it was those who passed who were harrassing those that flunked, is that right? A. Well I'm not really that familiar with it. I shouldn't really say that. That was my understanding, but I'm not really sure of that detail. I think I can safely say this, it was someone who got a higher score than someone else, harrassing the one with the lowest score.

Q. At least that! Now you've indicated that the battery of tests that were used in the instrument man—that battery of tests, had that same battery had been used for how long? A. This battery was developed in 1958 and has been used continuously since then. There have been some modifications to the battery. Modifications took place in 1970.

Q. When you say a modification, a change in a question? A. No. A change in—not the scoring procedure, but the arrival at the acceptable, the cutoff point.

Q. Okay, but the same questions have been used since 1958? A. In one of the tests, one of the entire tests—there were [151] three tests used in the test battery prior to 1970 and two tests used after that time. A research study was done at that time that showed that the third test was not making a significant enough contribution to warrant continuing its use.

Q. Okay, of those two tests that you continued over— A. Yes.

Q. —after 1970, did those two tests continue to contain the exact same questions as had been used from 1958 to 1970? A. To 1974.

Q. So there were no change in questions? A. That's correct.

Q. At least in those tests? A. That's correct.

Q. And the third one was dropped altogether? A. That's correct.

Q. And to your knowledge, Dr. Roskind, has this been the first time that the union has requested these tests? A. This particular case is the first time that the union has requested tests.

Q. Instrument man B tests? A. Yes, relative to PMO-123.

Q. You mean to say they've asked for the instrument man B battery of tests before? In any other context? A. I'm sorry. I just wasn't sure what your question was. In other words, not relevant to our case today at this point in [152] time. But since the beginning of the arbitration case of PMO-123, after the third step grievance, when Mr. Lewis became involved.

Q. But I'm saying this is the first time the battery of tests used in the instrument B situation. The battery has been in use since 1958. This is the first time that such batteries have been requested by the union? A. What do you mean by "this"? This time, yes.

JUDGE PARBAN: He apparently means this particular instance is the first instance in which the union has requested this.

THE WITNESS: Yes.

Q. (By Mr. Ciaramitaro) Now a couple of questions on validation studies. In your experience as—have you ever made two validation studies of the same test? A. Have we ever made two validation studies of the same test?

Q. Yes. Let me try to clarify that for you. Have you ever had a test where Detroit Edison would go in and make their own validation study and only Edison personnel participate in the validation study, and then have that same test be validated—a validation study being engaged in by an outside group? A. I guess that has occurred.

Q. Has it occurred once or more than once? A. There is only one instance of it, but it involved sixteen test batteries.

Q. In that instance, did the validation study come out identical? [153] A. The validation studies were not identical to start with and therefore did not come out identical.

Q. Now let's see if I can think of one way in which a validation study would differ. Would it differ in the job analysis and—for example—if an Edison person looks at a job he will see certain things. A different individual looks at a particular job, they may see something else, is that right? So that's one way in which a study will differ, right? A. Yes.

Q. And that could lead to a different result. As I scan over the R-13, it indicates some interviews of supervisory personnel were engaged to try and determine what the criteria were, how they had evaluated specific individuals, is that right? A. Yes.

Q. I assume correctly that if somebody else had engaged in the interviews, that that could also lead to a different result from the validation study? A. That's correct.

Q. And it would also be true if different test questions were used, you could expect a different result in the validation study, is that right? A. That's correct.

Q. And we've used the term evaluations of job performances as part of a validation study. These evaluations, are they [154] made by supervisory personnel, those who are watching the instrument men at their job? A. Yes, they are, that's the way it's done.

Q. Are those totally objective evaluations or does the subjective enter into it? A. That's always a problem in a validity study and an awful lot of effort goes in to making those evaluations as objective as possible. And I could give you several examples of how that's done.

Q. Yes. A. First of all, we don't ask for evaluations like do you like the guy or does he bowl well or do you get along well with him or something like that, or does he cause you a lot of trouble. We look for, in fact, measures, and we try to get as hard a measure of the actual job performance as is obtainable.

We ask very very specific questions. To what extent can this man do this particular task? That is part of this particular job, rather than how well do you like him or how good an employee is he? We are trying to find out how well, in fact, he'll be able to perform that job. If there are actual measures available and if you would have—as you would have if it's a production job, by the number of pieces turned out per hour, the amount of scrap used or something like that. You would also want to look at those kind of indices to get a measure of performance on the job. And then you have to very carefully instruct [155] and coach the supervisors as to the kinds of errors that can creep into evaluations and warn them to keep those kind of errors out of evaluations. And then, furthermore, you'd get more than one supervisor's evaluation if possible so that it would—you could get three or four individuals to rate a man, you'd feel far more comfortable that you'd

have an objective evaluation of that individual than if you had only one supervisor.

Q. You mean as objective as you can get? A. As objective as you can get.

Q. You can't totally eliminate subjectivity! A. There's no such thing as perfection.

* * *

[157] Q. How many—the men that were selected for this job—correct? This instrument job at Monroe? A. Yes.

Q. They all got acceptable or recommended status on the test? A. They all met the standards for the test, yes.

Q. Which are recommended or acceptable or what is the word? A. The word should have been acceptable. It was recommended in that job mostly. The word should have been acceptable.

Q. Everyone of them that got the job, therefore, had an acceptable rating on the test, is that right? A. With the exception of the incumbent.

Q. The incumbent? He was not incumbent to that plant, was he? [158] A. No, he was not.

Q. He was incumbent in some other plant? A. That's correct.

Q. And in his case you overlooked it? A. That's correct.

MR. HOUGHTON: What was that last question?

JUDGE BARBAN: You overlooked it.

MR. HOUGHTON: I see.

THE WITNESS: In response to your question—

MR. LEWIS: I thought you did answer it.

THE WITNESS: Not as accurately as I can.

Q. (By Mr. Lewis) Go ahead. A. The interviewers called us and asked for the performance of a list of individuals on that particular test battery. Now they asked us

for that individual performance. We gave them—the interviewer—the recommendation that the man had not met the test standards, as we had just changed them. We had just raised the standards. And he did not, in fact, meet the new standards, which were higher.

It became known to us later that this man was already on that job.

Q. In another plant? A. In another plant. And we went and spoke to the individual who was responsible for that selection and said we gave out these results on this individual by mistake. Had we known at [159] the time that the results were asked for, for that individual, that he was, in fact, an incumbent in another plant, we would not have given you any test results on that individual at all.

Q. But how would it comply with the mandate on the job vacancy that you must get a recommended or an acceptable standing on the test? A. I'm sorry, I don't know how that would apply except that I would not have given out test results on that individual had I known at that time that he was already working as an instrument man. And so we told the engineer that was responsible for making that selection that he would have to disregard those test results because the man was already on the job and he could not use the test to deny that man that job.

Q. You talked about people who get a low score being harrassed from time to time, Mr. Roskind, is that right? A. That happened quite some time ago, in the company.

Q. Yes, well, in the instant case, wouldn't everyone who was not selected at Monroe, wouldn't he know he got less than 9.3 on the test? Wouldn't he know that by inference or by deduction? A. At this point in time, I guess he would.

Q. Because the arbitrator said you must look at all who had 9.3 or better, isn't that right? A. That's correct.

Q. So if you weren't looked at you got less than 9.3?
 A. That's correct.

* * *

[162] JUDGE BARBAN: Dr. Roskind, you stated, on at least two or three occasions, concerning setting a standard or a cutting score. And on one occasion, raising the standard to a new standard. Who did this?

THE WITNESS: The original score was set at the time of [163] the original validity study back in 1958 or 1959.

JUDGE BARBAN: Was this done by management?

THE WITNESS: The score was set—the industrial psychology division—by Mr. Al Kanous and Dr. Greydon.

JUDGE BARBAN: When I speak of management I mean by the company.

THE WITNESS: By the company.

JUDGE BARBAN: Do you know whether the union played any part in that score?

THE WITNESS: To the best of my knowledge, they did not.

JUDGE BARBAN: When was that changed?

THE WITNESS: In 1970, '69 or '70. The men who were responsible for the instrument men, who worked for it, came to us and told us they were not satisfied with the individuals that were being selected by the current test battery and could we raise the score. And we said just on your say-so alone, we cannot raise the score. If you really are having a problem, we could conduct another validation study, a followup study and re-evaluate the current level of the men on the job today. And see whether or not the score is appropriate.

We didn't promise them we were going to raise the score or lower the score. We were just to do a followup study to see how, in fact, the present score was working.

And as a result of this research project in 1969 or '70, we decided it would be appropriate to, in fact, raise the score slightly. [164] And that was done by management.

JUDGE BARBAN: With or without the cooperation of the union?

THE WITNESS: Without any contact with the union.

JUDGE BARBAN: Thank you. Any further questions on these matters?

MR. HOUGHTON: Yes, I have just a few.

REDIRECT EXAMINATION

Q. (By Mr. Houghton) On the cutoff score, so I understand it, I understand that you get all your statistical information together and you plot it on a scatter plot or chart. That then determines the cutoff score? A. After you've placed all this information on the scatter plot, what you do is place the cutoff score so it will operate most effectively and you will make the least number of mistakes in predicting poor performance and in predicting good performers on the job.

Q. Is the selection of the cutoff point, then, a function of the results of the data? A. Yes it is.

Q. It's not something you just arbitrarily select and say, well, we'll set it at 10.3. A. That's correct, it's not that.

Q. If you were take the data and move the cutoff score from 10.3 to 11 or down to 9, the other side, what would happen in [165] terms of predictability? A. You would increase the number of errors you would be making in terms of selecting people.

Q. This would be true whether you raise or lower the cutoff score? A. That's correct.

Q. Just for the record, this incumbent that you discussed, who did not score satisfactorily on the revised test, but was put in the job because he was incumbent, am

I also correct that under the old form of testing, where you had the three tests involved, he did pass that test battery? A. Yes, he did. He passed under the three test system. He was acceptable on the original test battery and that's how he got into the job originally. It was only after we raised the standard that he slipped just below it.

Q. You were asked questions about whether or not you ever utilized two validity studies for the same test battery. Isn't that what happened here? Didn't the Edison company run its own validity study and then you had National Compliance run its validity study? A. That's correct.

You say you had two validity studies in effect for this test? A. That's right.

Q. Did the National Compliance, in conducting their validity [166] study, utilize or request copies of the actual tests, themselves? A. No, they did not.

Q. With reference to when the union may have first requested these tests, do you, of your own knowledge know, whether the union made a general request for copies of employee's tests during the 1972 general negotiations? A. Yes, I understand they did. I have seen minutes of their meetings. I understand that they did, in fact, request some copies of tests.

Q. And this was during negotiations for the present collective bargaining agreement? A. That's correct.

Q. And as a result of that request, were they given copies of the tests? A. No, they were not.

Q. And to your knowledge, was any contract item added into or taken out from the collective bargaining agreement pertaining to that question? A. Not that I know of.

Q. In connection with employees test scores and such. Have you had occasion, Dr. Roskind, where you've been confronted with a situation asking release of these scores. For example for a court proceeding or the Justice Department and if so, how do you handle that situation? A.

Approximately two years ago, the Department of Justice, [167] Civil Rights Division came to the company and conducted extensive investigations and they and the EEOC and the Michigan Civil Rights Commission all demanded copies of the tests. We explained to them why we could not give them copies of the tests and evidently they accepted that and finally, for the Department of Justice we did send a set of tests to their industrial psychologist. With a stipulation that he would protect their confidentiality.

Q. Did you at any time release actual test scores of individuals? A. In that same case, the Department of Justice asked us for test scores of specific individuals. And we reached an agreement that the only way we could give the department these specific test scores by name was to obtain a written release from those individuals prior to giving the government that information. In several cases, the individuals refused to sign the release, said they did not want the government to have that information and we did not forward the test scores for them. And the government accepted that.

Q. The employees signed releases. A. That's correct.

Q. In terms of verifying the scoring procedure, if I come to you as an employee and say I can't understand why I got such a low score. I thought I really did well on that test. Would you please double check the scoring. I think a mistake was [168] made. Do you have requests like that and so how do you handle them? But I don't think I've ever had that kind of a request. But if I did I would certainly go ahead and have the sheet pulled up and rechecked. And I would sit down with the individual and go over his test performance and try to help him understand.

Q. One question that occurred to me. In our mechanized society that we have today, why wouldn't you use live machines to score these tests, rather than individuals? A. We have given some thought to obtaining some scoring

machines, however, we're not doing that large a quantity a job right now. So we really can't justify having a scoring machine. Naturally we tend to get the job done faster by hand and the last individual that was in with a scoring machine, to demonstrate it and show how well it worked—he gave five of us a piece of paper and asked us to mark ten answers. The first ten answers, and most of us did. And we were just guessing because we hadn't seen any questions. He had a key already built into the machine. One of the people that works for me got carried away and marked more than ten answers. And while most of us got a score of two or three or four, which could have been a chance probability score, this one individual got a score of fourteen on supposedly a ten item test. So evidently there was a flaw in the machine. The salesman left kind of very embarrassed.

Q. You've had no substantial problem, I take it, with the [169] accuracy of the system that you use in terms of scoring? A. No. We haven't had any problem with accuracy. The people who do scoring are quite competent individuals. They're individuals who are quite conscientious and two people who are currently working for us now and do this work, one of them has a bachelor's degree in psychology. The other one has a master's degree in industrial psychology. They are professional level people.

* * *

RE CROSS EXAMINATION

Q. (By Mr. Lewis) Mr. Houghton just asked you about the incumbent, what's his name, Mr. Elliott? You said that he didn't score acceptable or recommended in later tests, but you said that he did score acceptable or recommended in the former test, is that right? A. That's my recollection, yes.

Q. The step two answer—that exhibit, step two answer, could I get the number of that exhibit, please?

JUDGE BARBAN: That's number four. Exhibit No. 4.

Q. (By Mr. Lewis) This is the answer on step two, Mr. Roskind, I'll just read the last paragraph and it says ten Mound Road employees applied and weren't considered prior to bids from employees outside of the Monroe powerplant. Nine were [170] scheduled to take the test for the first time under the new standard. Two failed to show up for testing. The other seven were tested and their test performance was evaluated as not recommended. Here it is. One man, Mr. Wiley, who was tested under the old standard, was evaluated as acceptable, under the old standard, prior to September 21, 1970. His test was re-evaluated at the time of the bid and in accordance with the new standards. His test was evaluated as not recommended, based upon these new standards.

Q. How is that any different than the incumbent? A. The situation, in terms of the testing, was identical in terms of the two individuals.

Q. But Mr. Wiley didn't get the job, right? A. Mr. Wiley was not an incumbent on the job.

Q. But he didn't get the job. A. That's right.

* * *

General Counsel's Exhibit No. 1(a)

UNITED STATES OF AMERICA
NATIONAL LABOR RELATIONS BOARD

CHARGE AGAINST EMPLOYER

Case No. 7-CA-10276(2)

Date Filed 4-4-73

1. Employer against whom charge is brought
 - a. Name of Employer—Detroit Edison Company
 - b. Number of Workers Employed—10,000
 - c. Address of Establishment (Street and number, city, State, and ZIP code)—2000 Second Ave, Detroit, Michigan
 - d. Employer Representative to Contact—E. Ruch, Dir. Labor Relations
 - e. Phone No.—WO 2-2100
 - f. Type of Establishment (Factory, mine, wholesaler, etc.)—Public Utility
 - g. Identify Principal Product of Service—Electric
 - h. The above-named employer has engaged in and is engaging in unfair labor practices within the meaning of section 8(a), subsections (1) and (5) and 8(d) of the National Labor Relations Act, and these unfair labor practices are unfair practices affecting commerce within the meaning of the Act.
2. Basis of the Charge (Be specific as to facts, names, addresses, plants involved, dates, places, etc.)

Since on or about April 2 1973, the above named employer has refused to bargain in good faith with Local 223 UTILITY WORKERS OF AMERICA AFL-CIO, the certified bargaining agent herein, by refusing to give The

Actual Battery of Tests Used in a promotion criteria grievance and bypass of several seniority employees—which absence of such disclosure materially affects and is pertinent to the obligation to perform duties of the bargaining agency. Management has met the Union's request and has supplied other items contained and asked for in its letter of March 5 1973 but refuses to grant or give the actual battery of tests which is 'crucial' or 'key' to a pending case and may affect many others in the future.

By this action, and continuing, the above-named employer, by its officers, agents, and representatives, has failed and refused to bargain collectively and in good faith with Local 223 UTILITY WORKERS UNION OF AMERICA AFL CIO, a labor organization designated and selected by a majority of the employees of said employer at its Monroe Power Plant Division and more than 20 other divisions for the purposes of collective bargaining in respect to pay, wages, hours of employment and other conditions of employment.

By the above and other acts, the above-named employer has interfered with, restrained, and coerced employees in the exercise of the rights guaranteed in Section 7 of the Act.

3. Full Name of Party Filing Charge (If labor organization, give full name, including local name and number)
Local 223 Utility Workers Union of America AFL CIO
- 4a. Address (Street and number, city, State, and ZIP Code)—2757 Grand River Ave, Detroit, Michigan 48201
- 4b. Telephone No.—WO 1-2901
5. Full Name of National or International Labor Organization of Which It Is an Affiliate or Constituent Unit (To be filled in when charge is filed by a labor organization)—Utility Workers Union of America AFL CIO

6. Declaration

I declare that I have read the above charge and that the statements therein are true to the best of my knowledge and belief.

By C. J. Lewis

(Signature of representative or person filing charge)

(Title, if any)—Director of Services UAW AFL CIO

Address—1717 Grant Deneau Bldg., Dayton Ohio 45402

(Telephone number)—513-223-0123

(Date)—4/4/73

Willfully false statements on this charge can be punished by fine and imprisonment (U.S. Code, Title 18, Section 1001)

General Counsel's Exhibit No. 1(c)

[August 8, 1974]

* * *

COMPLAINT AND NOTICE OF HEARING

It having been charged by Local 223, Utility Workers Union of America, AFL-CIO, herein sometimes called Charging Union, that The Detroit Edison Company, herein sometimes called Respondent, has engaged in, and is engaging in, certain unfair labor practices affecting commerce as set forth and defined in the National Labor Relations Act, as amended, 29 U.S.C., Sec. 151, *et seq.*, herein called the Act, the General Counsel of the National Labor Relations Board, herein called the Board, on behalf of the Board, by the undersigned Acting Regional Director for the Seventh Region, pursuant to Section 10(b) of the Act and Section 102.15 of the Board's Rules and Regulations—Series 8, as amended, hereby issues this Complaint and Notice of Hearing and alleges as follows:

1. The original charge in Case No. 7-CA-10276(2) was filed by Charging Union on April 4, 1973, and served by registered mail upon Respondent on or about April 6, 1973.
2. Respondent is, and has been at all times material herein, a corporation duly organized and existing by virtue of, the laws of the States of Michigan and New York.
3. At all times material herein, Respondent has been a public utility engaged in the generation, sale, and distribution of electrical energy within the State of Michigan. Respondent's Monroe, Michigan, power generating plant is the only facility directly involved in this proceeding.
4. During the calendar year ending December 31, 1973, which period is representative of its business operations at all times material herein, Respondent purchased from outside the State of Michigan and had shipped directly to its Michigan facilities supplies valued in excess of \$5,000,-

000. During the same period, Respondent sold electrical energy valued in excess of \$250,000,000 to customers within its service area which includes an approximate eleven-county geographical area within and surrounding the Detroit, Michigan, metropolitan area.

5. Respondent is now and has been at all times herein an employer engaged in commerce within the meaning of Section 2(2), (6) and (7) of the Act.

6. Local 223, Utility Workers of America, AFL-CIO, is and has been at all times material herein a labor organization within the meaning of Section 2(5) of the Act.

7. At all times material herein, the following-named persons occupied the positions set opposite their respective names, and have been and are now supervisors of the Respondent within the meaning of Section 2(11) of the Act, and/or its agents:

E. Ruch, Director of Union Relations

R. W. Schleicher, President's Delegate

Fred J. Locke, Technical Engineer

William L. Roskind, Industrial Psychologist

D. G. Thomas, Union Relations Department Representative

8. All operating and maintenance employees of Respondent's Production Department at its Monroe Power Plant, but excluding supervising operators, student engineers, training personnel, professional employees, technical employees, office clerical and plant clerical employees, part-time employees, temporary employees, seasonal employees, guards, foremen, assistant foremen, and all other supervisors as defined in the Act, and all other employees constitutes a unit appropriate for the purpose of collective bargaining within the meaning of Section 9(b) of the Act.

9. On or about March 24, 1971, in Case No. 7-RC-10330 a majority of the employees in the unit set forth in paragraph 8, above, selected and the Regional Director of the Seventh Region on April 1, 1971, certified the Charging Union as their exclusive collective-bargaining representative.

10. At all times since April 1, 1971, and continuing to date, by virtue of the Certification of Representative in Case No. 7-RC-10330, the Charging Union has been the designated representative for the purpose of collective bargaining of the employees in the unit described in paragraph 8, above, and, by virtue of Section 9(a) of the Act, has been, and is now, the exclusive representative of all the employees in said unit for the purposes of collective bargaining with respect to rates of pay, wages, hours of employment and other terms and conditions of employment.

11. On or about January 17, 1972, the Charging Union filed a grievance against Respondent, pursuant to the then-current collective-bargaining agreement between Respondent and the Charging Union, pertaining to the qualifications for, and promotion to, the Instrument Man B job classification (PMO-123).

12(a). Commencing on or about March 5, 1973, and at all times since, and more particularly in writing and/or orally on or about March 5, April 2, May 23, June 2, June 26 and July 23, 1973, the Charging Union, by its agent, Clem Lewis, has requested Respondent to furnish the Charging Union with the actual Instrument Man aptitude test(s) administered to, the examination papers of, and the actual test scores attained by, each employee involved in the grievance referred to in paragraph 11, above, who had taken said test, including both those promoted and those not promoted to said classification.

(b) The information requested by the Charging Union, as specified in paragraph 12(a), above, is relevant and necessary to the processing of the grievance referred to in paragraph 11, above, including the ascertainment of promotion criteria, the veracity of the scoring and grading of the examination and the testing procedures, and the job relatedness of the test(s) to the Instrument Man B classification.

13. Since on or about March 15, 1973, and at all times since, and more particularly in writing and/or orally on or about March 15, April 2, May 23, July 10, July 18, July 23, and August 6, 1973, Respondent has refused and continues to refuse to furnish the Charging Union with the information requested and described in paragraph 12, above, because said records were purportedly confidential.

14. By the acts described above in paragraph 13, and by each of said acts, Respondents did interfere with, restrain, and coerce, and is interfering with, restraining and coercing its employees in the exercise of the rights guaranteed in Section 7 of the Act, and thereby did engage in, and is engaging in, unfair labor practices affecting commerce within the meaning of Section 8(a)(1) and Section 2(6) and (7) of the Act.

15. By the acts described above in paragraph 13, and by each of said acts, Respondent did refuse to bargain collectively and is refusing to bargain collectively with the representative of its employees, and thereby did engage in, and is engaging in, unfair labor practices affecting commerce within the meaning of Section 8(a)(5) and Section 2(6) and (7) of the Act.

16. The acts of Respondent described in paragraph 13, above, occurring in connection with operations of Respondent described in paragraphs 2 through 5, above, have a close, intimate, and substantial relation to trade, traffic, and commerce among the several States and tend

to lead to labor disputes burdening and obstructing commerce and the free flow of commerce.

17. The acts of Respondent described above constitute unfair labor practices affecting commerce within the meaning of Section 8(a)(1) and (5) and Section 2(6) and (7) of the Act.

WHEREFORE, it is prayed that Respondent be ordered to:

1. Cease and desist from:

(a) Failing and refusing to furnish the Charging Union with the information specified in paragraph 12, above.

(b) Otherwise refusing to bargain in good faith with the Charging Union.

(c) In any other manner interfering with, restraining or coercing its employees in the exercise of rights guaranteed in Section 7 of the Act.

2. Take the following appropriate affirmative action:

(a) Upon request, make available to the Charging Union the aforesaid information specified in paragraph 12, above, providing that only the Charging Union's agents directly involved in the processing of the grievance involved herein shall be permitted access to the actual Instrument Man B aptitude test(s) involved herein.

(b) Bargain in good faith with the Charging Union.

(c) Post appropriate notices.

IT IS FURTHER PRAYED that said Order provide for any and all other relief appropriate herein.

PLEASE TAKE NOTICE that on the 23rd day of September, 1974, at 10:30 a.m., Eastern Daylight Time, at Room 500, Book Building, 1249 Washington Boulevard, Detroit,

Michigan, a hearing will be conducted before a duly designated Administrative Law Judge of the National Labor Relations Board on the allegations set forth in the above Complaint, at which time and place you will have the right to appear in person or otherwise and give testimony. Form NLRB-4668, Summary of Standard Procedure in Formal Hearings held Before the National Labor Relations Board in Unfair Labor Practice Cases, is attached.

YOU ARE FURTHER NOTIFIED that pursuant to Section 102.20 and 102.21 of the Board's aforementioned Rules and Regulations, the Respondent shall file with the undersigned Acting Regional Director, acting in this matter as agent of the Board, an original and four (4) copies of an Answer to said Complaint within ten (10) days from the service thereof, and that unless it does so, all of the allegations in the Complaint shall be deemed to be admitted true and may be so found by the Board. Immediately upon the filing of its answer, Respondent shall serve a copy thereof on each of the other parties.

Dated at Detroit, Michigan, this 8th day of August, 1974.

/s/ Henry L. Chiles, Jr.
 Henry L. Chiles, Jr.
 Acting Regional Director
 National Labor Relations Board
 Seventh Region — 500 Book Building
 1249 Washington Boulevard
 Detroit, Michigan 48226

General Counsel's Exhibit No. 1(e)

[August 16, 1974]

* * *

ANSWER OF EMPLOYER, THE DETROIT EDISON COMPANY

Now comes THE DETROIT EDISON COMPANY, by its attorneys, Fischer, Franklin & Ford, in answer to the Complaint and Notice of Hearing heretofore issued by the Board on August 8, 1974, and states as follows:

1. Respondent neither admits nor denies the allegations set forth in paragraph 1 for lack of information.
2. Admitted.
3. Admitted, except that Respondent denies that its Monroe Generating Plant or any other particular physical facility is involved in these proceedings.
4. Admitted.
5. Admitted for the purpose of this case.
6. Admitted.
7. Admitted in part. E. Ruch, Director of Union Relations, is a supervisor within the meaning of Section 2(11) of the Act. R. W. Schleicher, Fred J. Locke, William L. Roskind are not supervisors within the meaning of Section 2(11) of the Act.
8. Admitted.
9. Admitted.
10. Admitted.
11. Respondent neither admits nor denies the allegations set forth in paragraph 11 for lack of information.
- 12(a). Admitted. For further answer, Respondent states that the Union and grievants voluntarily submitted this dispute to arbitration (Grievance PMO-123), which matter was presented to Dallas L. Jones. Said Arbitrator,

in a decision dated December 3, 1973, determined that he had no authority to give the Union the actual Instrument Map Aptitude Tests or the examination papers or actual test scores attained by employees, and he further ruled that such information was not relevant and was in no way necessary for the Union to pursue its grievance.

(b). Denied. See answer set forth in response to paragraph 12(a) above.

13. Admitted. For further answer, Respondent states that said records are, in fact, confidential. In addition, Respondent has failed to provide the charging Union with the requested information because it is not relevant or necessary for the purpose of pursuing Grievance PMO-123 or for any other reason. In so doing, Respondent did not in any way interfere with, restrain or coerce its employees in exercise of their Section 7 rights under the Act, nor did it in any way interfere with the Union's responsibilities and right to bargain collectively.

14. Denied.

15. Denied.

16. Denied.

17. Denied.

WHEREFORE, it is prayed that the Charging Party's Complaint be dismissed with prejudice, and further that Respondent be granted any further relief appropriate herein.

DATED: August 16, 1974.

FISCHER, FRANKLIN & FORD
By: /s/ RALPH H. HOUGHTON, JR.
Ralph H. Houghton, Jr.
Attorneys for Employer
1700 Guardian Building
Detroit, Michigan 48226
962-5210

General Counsel's Exhibit No. 2

NATIONAL LABOR RELATIONS BOARD

Docket No. 7-CA-10276(2) OFFICIAL EXHIBIT No. GC-2

Disposition) Identified	✓
) Received	✓	
) Rejected		

In the matter of Detroit Edison

Date 9/23/74 Witness, Lewis Reporter, OL

Pages 143

Agreement

BETWEEN

THE DETROIT EDISON COMPANY

AND

LOCAL UNION NO. 223

OF THE

**UTILITY WORKERS UNION
OF AMERICA**

AFFILIATED WITH THE

AFL-CIO

SIGNED JULY 7, 1969

Section 13. Promotions. In promotion of employes covered by this Agreement to classifications within the same bargaining unit, seniority will govern whenever reasonable qualifications and abilities of the employes being considered are not significantly different. "Significant difference" shall be "head and shoulders difference", and such factors as advance licenses or step-up experience shall not of themselves amount to significant differences. If the Management proposes to by-pass any employe with greater seniority, the Management will discuss the matter with the chairman of the bargaining unit involved (at least five (5) days before the by-pass is made effective) in an attempt to reach an agreement thereon before such a by-pass is made. In the event of disagreement, the matter may be processed through the grievance procedure to the President of the Company, or his delegate, whose decision shall be controlling, except that the question of whether the by-pass has been arbitrary or discriminatory may be submitted to arbitration in accordance with Article V of this Agreement. If the arbitrator finds the by-pass was arbitrary or discriminatory, the by-pass will be canceled.

Section 14. Trial Period. a. Except as otherwise provided in paragraph c of this section, every employe who begins employment for the first time in a classification in a bargaining unit shall be on trial for a period of six (6) months from the first day of his continuous employment in that classification to demonstrate his abilities and qualifications for such work. If he shall be found not qualified by Management during this six (6) month period, he shall be returned to his former bargaining unit and classification, if any, without prejudice. In the event of disagreement concerning the employe's ability or qualifications, except in the case of a probationary employe, the matter may be processed through the grievance procedure up to the President of the Company, or his delegate, whose decision shall be controlling, except that the question of whether the Management's action has been arbitrary or discriminatory may be

submitted to arbitration in accordance with Article V of this Agreement.

b. In the case of a probationary employe, or one who is rehired into a classification in which he has no seniority, termination of employment shall not be the subject of a grievance or arbitration. Otherwise, such an employe shall have the full benefit of the grievance procedure under Articles IV and V.

c. (Exception to paragraph a of this Section:) Both parties recognize that in some instances six (6) months may not be a sufficient period of time in which to adequately judge the qualifications and abilities of an apprentice in training. In the event an apprentice in training does not pass required classroom work, he will be permitted one (1) repeat session for each course failed during each term of the training program provided he is otherwise progressing satisfactorily. Should a second attempt in any course also result in failure, the apprentice may be dropped from the training program and classification. If such employe, because of classroom work or on-the-job performance, is found not qualified after having been longer than six (6) months in the training program, he shall be returned to his former classification, if any, and he will be credited with an additional six (6) months of seniority in his former classification. If such employe has no former classification to which he can be returned, the Company will attempt to place him on other work which he is qualified to perform; but, in such event, he will not be credited with seniority in the newfound classification.

* * *

Section 38. Posting Notices of Vacancies. a. If a vacancy occurs in any one of the bargaining units covered by this Agreement and such vacancy is not filled by promotion or transfer within the group, a notice of such vacancy shall be posted for a period of five (5) days in the bargaining unit in which it occurs and copy sent to a Union divisional officer designated by the respective division.

b. If such a vacancy is not filled by a member of the bargaining unit, notice of the vacancy shall be posted in other bargaining units of the same department for a period of five (5) days. If the reasonable qualifications and abilities of the employes being considered as a result of this posting are not significantly different, total length of service in the Company shall govern. "Significant difference" shall be "head and shoulders difference", and such factors as advance licenses or step-up experience shall not of themselves amount to significant differences.

c. If such a vacancy occurs in any one of the bargaining units covered by this Agreement, which is not filled by the foregoing procedure, notice of this vacancy will be posted on the bulletin boards of the other units stating that such a vacancy exists. Such vacancies will not be filled, except on a temporary basis, until at least five (5) days after the posting of such notices, in order that employes in other units may apply. If the reasonable qualifications and abilities of the employes being considered are not significantly different, total length of service with the Company shall govern. "Significant difference" shall be "head and shoulders difference", and such factors as advance licenses or step-up experience shall not of themselves amount to significant differences.

d. Failure of an employe to avail himself of opportunities for promotion or voluntary transfer shall not prejudice his future opportunities.

* * *

Section 42. Training Advisory Groups. A training Advisory Group shall be formed in each bargaining unit having a formal training program for Union-represented employees (other than operator training programs, but including apprentice training programs). The purpose of each Training Advisory Group will be to make recommendations for the development and improvement of said training programs. Each Training Advisory Group will consist of two (2) members from the bargaining unit, two (2)

Management members from the department involved, one (1) Local Union appointee, and one (1) Management member from Training Services who will serve as Secretary. All six (6) such members shall have voting rights. Meetings will be arranged at mutually agreeable times at the request of any two (2) members. Agenda will be distributed to the members of a group before the date of a meeting. Union or Management members may have an incumbent employe present at a meeting as a non-voting participant. If agreement on a particular proposal cannot be reached by a vote of a majority of the members, the proposal of the Management members of the group shall be recommended to the Company, subject to the Union's right to bring a grievance under Articles IV and V. These groups (including incumbent employes) shall meet on Company time.

General Counsel's Exhibit No. 3

Case No.—PMO-123

Dated—1-20-72

Company—Detroit Edison Co.

City and State—Monroe, Michigan

Employee's Name—Union Grievance

Plant or Division—Monroe Power Plant

Department—Production

Number of men involved—6 six

Date of grievance—1-17-72

Name of Shop Steward or Committeeman—Bill Wright

Description of grievance—Art. VIII, Sec. 38, Vacancies, Posting Notices of, Art. 4, Sect. 2—Disagreement between union & management. The union feels the testing procedure used was unfair in filling the six vacancies in the instrument shop. The bidders from Monroe Power Plant should have been selected. Restitution sought, the six senior men from Monroe be placed on the inst. job.

Signature of employee—R. Sprayberry, Chairman Monroe Power Plant

Case History of Grievance

January 21, 1972

None of the Monroe Power Plant grievants who were by-passed for the Instrument Repairman job posting of November 4, 1971 met the selection standards of the Instrument Repairman Aptitude Test, which is one of the required qualifications.

They were given the same aptitude test as those that were selected. They were graded in the same manner as those that were selected. Since they did not meet the required posted qualifications for this test, they were not selected.

/s/ **FRED J. LOCKE**
Fred J. Locke

General Counsel's Exhibit No. 4

[Letterhead]

March 5 1973

The Detroit Edison Company
2000 Second Avenue
Detroit Michigan 48201

Attention—Mr E Ruch, Director of Union Relations
Gentlemen:

I am writing in connection with the forthcoming arbitration in re PMO 123 scheduled for hearing soon. I believe the undersigned will be the advocate in that matter.

After reading the record, and in an effort to save time, and I believe I have it coming as disclosure in accord with the Board's rules, I respectfully ask you to send me the following exhibits and material:

1. The actual battery of tests used in the captioned matter.
2. The method of scoring or grading and the actual criteria for finding 'acceptability' or 'recommended' or 'Not Recommended'.
3. A report on the test validation.
4. A report by the National Compliance Company, which, as I understand it, consulted upon, and reviewed the Company's whole testing system or apparatus.

I presume there is no way to settle this matter (out-of-arbitration) but if you wish to talk to me about that—or in connection with the above—please advise—since I hope to be at Detroit Office the coming Friday, Saturday, Sunday, and Monday; you could send the material to that location. I am available Tuesday at the Dayton telephone number above. Many thanks.

Very truly

/s/ **RALPH HOUGHTON**

Clem Lewis
DIRECTOR OF SERVICES.

General Counsel's Exhibit No. 5**[Letterhead]****March 15, 1973**

Mr. Clem Lewis
Director of Services
Utility Workers Union of America
1717 Grant Deneau
Dayton, Ohio 45402

Re: Detroit Edison Labor Arbitration (Grievance PMO-123)

Dear Mr. Lewis:

This letter will confirm our telephone conversation on March 13, at which time we discussed a possible meeting regarding the above matter.

I have arranged for us to meet with Mr. William L. Roskind at The Detroit Edison Company on Monday, April 2, 1973, at 2:00 P.M.

As I explained, the actual battery of tests used in the testing program are confidential and in order to insure the future integrity of those testing procedures, they cannot be released. Mr. Roskind has indicated, however, he would be pleased to discuss the testing procedures with you, as well as explaining the validation procedures, etc.

I would suggest we meet on April 2 in Mr. Ruch's office at 2:00 P.M. and we can then proceed to an appropriate conference room.

Very truly yours,

/s/ RALPH H. HOUGHTON, JR.
Ralph H. Houghton, Jr.

RHHjr/mm

General Counsel's Exhibit No. 6

Research and Education Department
UTILITY WORKERS UNION OF AMERICA, AFL-CIO

National Headquarters
Grant/Deneau Tower, Dayton, Ohio 45402

May 23 1973

TO: Mr. DALLAS JONES, Arbitrator, operating under the auspices and rules of American Arbitration Association

FROM: C J LEWIS, Director of Services, UTILITY WORKERS UNION OF AMERICA

SUBJECT: Arbitration in connection with Grievance PMO 123—Detroit Edison Co

We have previously asked the Management of Detroit Edison Company to supply us with the actual tests which were the instruments to effectively foreclose grievants in the above matter from entering training, trial or promotion to Instrument Man classification at the Monroe Plant of Detroit Edison. We have also gone to the Labor Board where a case is pending, it being our position that it is a Statutory Obligation of Management to supply us with this information.

Quite apart from the Labor Board case, the Arbitrator has the right and duty, on petition from one of the advocates, to order a party to produce certain records necessary to the case of the other side and relevant to the cause at bar. Going further, the Arbitrator can actually subpoena such records.

We regard the actual tests as essential, and perhaps key, to our case and we ask you forthwith:

1. To have Detroit Edison supply the undersigned as Advocate for the Union, copies of the actual tests used by sixteen candidates who applied for the Instrument job.

2. Failing item 1 above, to sub pena the actual tests and make them available to the undersigned.

Much has been said about the secrecy and confidentiality of these tests and I assure all concerned that such an item does not bother or interest this advocate in the least. What this advocate needs to know is if the questions on these tests are reasonably relevant to the Job being considered. This could be an important point in our defense.

/s/ C. J. Lewis
C. J. Lewis

General Counsel's Exhibit No. 7

June 2 1973

To: Mr. RALPH HAUGHTON, Attorney At Law, Guardian Building, Detroit Michigan

FROM: CLEM LEWIS, UWUA, 1717 Grant Deneau Building Dayton Ohio

SUBJECT: Deposition and Statement of Arthur D Wiley Jr

If you recall, at the conclusion of the day's hearing on May 31, 1973, in re arbitration of grievance PMO-123, heard before Professor Dallas Jones, it was agreed, because of Mr Wiley's illness, that I could take his testimony or statement in writing and submit the same to you.

I had Mr Wiley in the Union Building today and took the attached or enclosed statement; you will see that it provides you to the opportunity to cross-examine in writing if you so desire.

I will send you two copies of Mr Wiley's statement; if you agree with it, without the need for cross examination, you can forward the original to Professor Dallas Jones—or back to me and I will forward it—or we can turn it over to the AAA Office in Detroit for transmission to him.

I am going to send Professor Jones a copy of this letter, but not a copy of Mr Wiley's statement—for the reason that I want the arbitrator to know there is a statement or deposition coming to him—either in its original form—or coupled with a cross-examination if you wish to meet Mr Wiley and write one.

Inasmuch as I am writing you, and after much deliberation, I find I cannot withdraw my request for the actual tests, scores, and weights. While the Company has made samples for me, and I appreciate that, and while it gave scores without revealing names, I have the problem of knowing the weights in the 6 parts of the EPSAT test—the

total weight of EPSAT—then the weight of Minnesota Form Board—then how the various parts fit together to form the possible apex of 15.3 in the upper limit, quite apart from the 10.3 cut off score.

Then, to be quite frank, after listening to some who got the job and some who were refused, we are amazed—just as we were amazed by the samples offered to us in the Physical Science section of EPSAT.

Sincerely,

/s/ Clem Lewis

COPY: Professor Dallas Jones
NLRB

General Counsel's Exhibit No. 8

FISCHER, FRANKLIN & FORD
Attorneys and Counsellors

1700 Guardian Building/Detroit, Michigan 48226
Telephone (313) 962-5210

July 10, 1973

Mr. Clement Lewis
Local 223, UWUA, AFL-CIO
1717 Grant Deneau Tower
Dayton, Ohio 45402

Re: Detroit Edison Labor Arbitration
Grievance PMO-123 (AAA Case No. 5430 0720 72);
Mr. Lewis' Request of June 2 and June 26, 1973

Dear Mr. Lewis:

Reference is made to your letter of June 2, 1973, in which you request certain information pertaining to the testing procedure involved in the Instrumentman Battery. This request was also referred to in your letter of June 26, 1973. While we were in the process of gathering together information to satisfy your request, Arbitrator Dallas L. Jones forwarded a letter to the parties under date of July 3, 1973. This letter and the enclosed information are being forwarded to you and Professor Jones in response to your inquiries. We have made a diligent attempt to provide you with all the information that you will need in order to have a competent psychologist properly analyze these tests and the testing procedure.

As I advised you at the arbitration hearing, the actual test scores of the employees have always been considered extremely confidential by the Company and, in fact, they have never been made available to members of management of the Company or any other persons other than the trained, qualified Company psychologists. Furthermore, in

this case, none of the employees involved have given the Company any express permission to release this information. Therefore, as we previously indicated, we must respectfully decline your request for that information. I would remind you, of course, that during the hearing we did present an exhibit which demonstrated the range of actual scores attained by the grieving employees who are involved in this case.

With respect to your request for the actual tests themselves, again I would advise you that these have been considered confidential by the Company and we could not comply with your request without destroying the future validity of those tests. Furthermore, I am advised by Mr. Roskind and Mr. Kanous that such a disclosure would be violative of Principle 13 of the Ethical Standards of Psychologists. From a practical standpoint, which I am sure you can understand, the Company has spent tens of thousands of dollars in validating these studies and tests which were utilized in this case. The use of those tests themselves depend, in part, on the naivete of the applicants and employees who take the test. Therefore, from all standpoints, it is necessary that we maintain the confidentiality of those tests. Furthermore, as we indicated at the hearing, a competent, trained psychologist can properly study and evaluate the test and the validation procedures with the information you already have in hand. It is not necessary that he have a copy of the actual tests themselves and, furthermore, even if he did, they would be of no particular use in reaching a decision as to whether or not the tests were properly validated and utilized.

In your letter of June 2, you did request certain information pertaining to the battery weights and method of scoring both the Minnesota Paper Form Board Test, as well as the EPSAT Test. I believe all of that information was presented at the hearing. However, I did ask Mr. Roskind to prepare a statement setting forth that data in line

with your particular request so that it would be available to you to utilize in reviewing the testimony and preparing your brief. That information is set forth on the two exhibits enclosed herewith, the first one being entitled "Explanation of Battery Weight, Raw Score and Items on Minnesota Paper Form Board Test and EPSAT Test", and the second being entitled "Instrumentman Battery". I believe those two exhibits contain all of the information requested in your letter except as noted above.

If you require any other or further information regarding this matter, please let me know.

Very truly yours,
 /s/ RALPH H. HOUGHTON, JR.
 Ralph H. Houghton, Jr.

RHHjr/mz
 Enclosures

cc: Prof. Dallas L. Jones (w/Enclosures)
 American Arbitration Assn. (w/o Enclosures)

**EXPLANATION OF BATTERY WEIGHT, RAW SCORE AND
 ITEMS ON MINNESOTA PAPER FORM BOARD TEST
 AND EPSAT TEST**

The Minnesota Paper Form Board (MPFB) Test is composed of 64 items of identical format. For an example see Company exhibit Number 5, Part X. An employee's performance on this test will result in a score which ranges between 0 and 64, and an accompanying battery weight which ranges between 2.61 and 6.62. For the actual correspondence between a given raw score and its battery weight, see the attached sheet titled Instrumentman Battery.

The Engineering and Physical Science Aptitude Test (EPSAT) is composed of 155 items whose item format

varies between the six parts of the test. A tabulation of the number of items per part and their corresponding example may be seen below.

<u>Part</u>	<u>Items</u>
1. Math Example—Company Exhibit No. 5, Part III	25
2. Formulation Example—Company Exhibit No. 8	10
3. Physical Science Comprehension Example—Company Exhibit No. 12	45
4. Arithmetic Reasoning Example—Company Exhibit No. 9	10
5. Verbal Comprehension Example—Company Exhibit No. 5, Part I	43
6. Mechanical Comprehension Example—Company Exhibit No. 5, Part VI	22
Total	155

No weight has been assigned to each of the six parts of the EPSAT. Each part of the EPSAT is first scored separately for administrative and research purposes. Then the scores on the six parts are added together and are considered as a single score. Thus an employee's performance on the EPSAT ranges between 0 and 155. The battery weight for this test as a whole ranges between 1.43 and 8.65. For the actual correspondence between a given raw score on the EPSAT and its battery weight see the attached sheet titled Instrumentman Battery.

In answer to the question of how a battery score of 15.3 is achieved, you are again referred to the attached sheet which shows the correspondence between raw scores and battery weights over their full range. A score of 59 or more on the MPFB results in a battery weight of 6.62. A score of 125 or more on the EPSAT results in a battery

weight of 8.65. These two weights are added together to obtain a battery score of 15.27 which is then rounded up to 15.3. You will recall that the battery weights were derived from the multiple regression equation in the validation research.

In reference to your request for the actual tests, scores, and weights, I believe that the above information should aid your understanding of the relationship between test scores and weights.

INSTRUMENT BATTERY

September 1970

<u>Minnesota Paper Science Aptitude Test</u>	<u>Engineering and Physical Form Board Test</u>
<u>Raw Score</u>	<u>Wt.</u>
59-64	6.62
57-58	6.38
54-56	6.14
52-53	5.90
49-51	5.66
47-48	5.43
44-46	5.19
41-43	4.90
38-40	4.61
35-37	4.33
33-34	4.09
30-32	3.85
28-29	3.61
25-27	3.37
22-24	3.09
20-21	2.85
0-19	2.61
<u>Raw Score</u>	<u>Wt.</u>
125-155	8.65
117-124	8.17
109-116	7.69
101-108	7.20
93-100	6.72
85- 92	6.24
77- 84	5.76
69- 76	5.28
60- 68	4.74
52- 59	4.26
44- 51	3.78
37- 43	3.30
29- 36	2.88
21- 28	2.40
13- 20	1.92
0- 12	1.43

ACCEPTABLE BATTERY SCORE 10.3

General Counsel's Exhibit No. 9

FISCHER, FRANKLIN & FORD
Attorneys and Counsellors
1700 Guardian Building/Detroit, Michigan 48226
Telephone (313) 962-5210

July 18, 1973

Mr. Clem Lewis
Local 223, UAW, AFL-CIO
1717 Grant Deneau Towers
Dayton, Ohio 45402

Re: Detroit Edison Labor Arbitration
Grievance PMO-123 (AAA Case No.
5430 0720 72)

Dear Mr. Lewis:

Reference is made to your letter of July 13, 1973, regarding the above matter.

I appreciate the fact that you are questioning whether or not there is a "head and shoulders difference" between those that were selected for the job and those who were not. We, of course, look at the issue as being one of whether the applicants meet the minimum qualifications for the job. Be that as it may, we have, I believe, furnished you with all of the requested information.

It is unfortunate, perhaps, that matters such as psychological aptitude tests and the theories behind the tests cannot be understood by all lay people; however, that is not the issue in the case. I am sure that there are many people in management who do not have the expertise to understand and evaluate tests of this sort, and this, of course, is also true of officers and members of the Union.

I would suggest that if it is agreeable with you we plan on filing our briefs with the arbitrator by August 20 as I earlier indicated. In the meantime or even after that date,

perhaps a decision can be made as to whether or not the arbitrator should render his decision before the NLRB acts or vice versa. In either event, we might as well file our briefs so that the record is complete.

If you have any further thoughts on this or would like to meet with me regarding the course of action to be pursued, please let me know.

Very truly yours,

/s/ RALPH H. HOUGHTON, JR.
Ralph H. Houghton, Jr.

RHHjr/mz

cc: Prof. Dallas Jones
American Arbitration Association

REPLY—xerox made 7/23/73

To: RALPH H. HOUGHTON JR.

FROM: CLEM LEWIS—

After talking with you today, I think we can probably proceed as you suggest. However, we both want to cover all the bases and I will think a little about it all and try to see you next Friday afternoon 7/27 3pm or 4pm and maybe we can execute a little note protecting the interests of each. My problem is, and it is yours also, what NLRB will do on the 'disclosure' issue; and what the arbitrator himself could do on the 'disclosure' issue. And, as you said, and I previously opined, NLRB might make the 'disclosure' issue a Collyer case.

But, in general, I agree with you that we can file briefs and still preserve these questions—and we should while the testimony and exhibits are still fairly fresh, and not stale.

So I will either write again, or telephone, or, as I say, visit with you next Friday afternoon. At that time, we can advise Professor Jones and AAA if we have agreed on a date such as August 20th, or slightly thereafter, for filing briefs.

General Counsel's Exhibit No. 10

FISCHER, FRANKLIN & FORD
 Attorneys and Counsellors
 1700 Guardian Building/Detroit, Michigan 48226
 Telephone (313) 962-5210

August 6, 1973

Mr. Clem Lewis
 Utility Workers Union of America
 1717 Grant Deneau Tower
 Dawton, Ohio 45402

**Re: Detroit Edison Labor Arbitration
 PMO-123 and Pending NLRB Case**

Dear Mr. Lewis:

Reference is made to our meeting of July 27, 1973, and your proposed agreement regarding the filing of briefs in the arbitration matter.

I have reviewed that statement and also given consideration to the discussions we had, and I believe that I am correct when I say that we are in agreement that we should go ahead and file briefs and, further, that the arbitrator should rule. However, you wish to protect your position with the National Labor Relations Board so that in the event the arbitrator rules in favor of the Company you will still be free to pursue your case before the NLRB.

In the event the NLRB issues a decision prior to the arbitrator's award, then I think that will be controlling regardless of what the arbitrator might rule on the disclosure issue. In any event, as Mr. Ruch and I advised you at our meeting, if either the NLRB or the arbitrator should rule that the Company is required to disclose the actual tests, we would find it necessary to make a court case out of such a decision.

Taking all of the above into consideration, I have drafted a proposed letter to be sent to Arbitrator Dallas Jones, a copy of which can also be sent to the National Labor Relations Board if you so desire. I believe it satisfactorily protects the positions of both The Detroit Edison Company and the Utility Workers. If the letter meets with your approval, please sign it and forward the original to Professor Jones with a copy to my attention. If you have any questions regarding the letter, give me a telephone call so that we can try and work them out.

Thank you for your attention to this.

Very truly yours,

/s/ **RALPH H. HOUGHTON, JR.**
 Ralph H. Houghton, Jr.

RHHjr/mz

Enclosure

cc: Mr. Emil Ruch

General Counsel's Exhibit No. 11**NATIONAL HEADQUARTERS**

Grant/Deneau Tower, Dayton, Ohio 45402

August 9, 1973

To: PROFESSOR DALLAS L. JONES, Ann Arbor Michigan
RALPH H. HOUGHTON, JR, Attorney

From: CLEM LEWIS, UWUA AFL CIO

Subject: Detroit Edison Arbitration with Local 223
UWUA AFL CIO
Grievance PMO-123 AAA Case 5430 0720 72

I am transmitting to Professor Jones a copy of Ralph Houghton's letter which, in effect, sets forth some ground rules for filing briefs in the above matter, and continuing the case, if warranted, based on other speculative actions. It is not precisely the proposed agreement I served to Mr. Houghton and Detroit Edison on July 27th 1973 but it will do.

One passage of Mr. Houghton's letter is worthy of note, however. It says "if Mr. Lewis desires, he can always ask the NLRB to review the arbitrator's decision on disclosure in order to determine whether or not it is consistent with the policies of the Act".

Actually, I asked the Arbitrator to order or subpoena disclosure based on his role as Arbitrator and/or within to order disclosure based on 'the policies of the Act' and the Arbitration rules. On the other hand, I asked NLRB Board precedents. One is not necessarily contingent upon the other, nor are the criteria and rules necessarily the same.

As I understand the Collyer doctrine at NLRB, if a charge is filed and the Board defers to an arbitrator within the arbitration terms of the contract, then the Board retains some type of jurisdiction and does not close

the case. If an arbitrator orders disclosure, in connection with a case, I do not believe the Board feels the same is persuasive or controlling on it; or, on the other side, if the arbitrator fails to order same, the Board still may do so. In other words, the Board effects the policies of the Act; the Arbitrator does what is needed for the particular arbitration itself.

My arguments, on disclosure, in the brief for the arbitrator might or might not be the same as my arguments on the subject before the Board; it is two different tribunals—one performs a contract; the other performs a Law. But , as I say, let us begin—I will agree to the filing of briefs by September 5 1973.

/s/ CLEM J. LEWIS
Clem J. Lewis

General Counsel's Exhibit No. 12

FISCHER, FRANKLIN & FORD
Attorneys and Counsellors

1700 Guardian Building/Detroit, Michigan 48226
 Telephone (313) 962-5210

August 6, 1973

Prof. Dallas L. Jones
 831 Westwood
 Ann Arbor, Michigan 48103

**Re: Detroit Edison Arbitration With Local 223,
 Utility Workers Union of America, AFL-CIO;
 Grievance PMO-123; AAA Case No. 5430 072 72**

Dear Professor Jones:

Mr. Lewis and I met in Detroit on July 27 in an effort to resolve certain questions regarding the filing of briefs and your proceeding to render a decision in this matter. Mr. Lewis has agreed that briefs will be filed on or before September 5, 1973, and also that you ought to proceed with a decision in the case both with respect to the disclosure issue, as well as the substantive issue involved in the grievance itself.

Mr. Lewis expresses concern that if you go ahead and render a decision on the disclosure issue, that that will somehow affect his position before the National Labor Relations Board. I advised him that in my opinion with the present case pending before the Board, he need not be concerned about waiving any of his rights. If Mr. Lewis desires, he can always ask the NLRB to review your decision in order to determine whether or not it is consistent with the policies of the Act.

Mr. Lewis' primary concern seems to be this: If you should render a decision in favor of the Company both with respect to the disclosure issue and the substantive issue in the grievance and then the NLRB or the court, as the case might be, should ultimately order the Company

to disclose the actual tests themselves, then in that event Mr. Lewis desires to have the opportunity to reopen the arbitration case in order to review his position after he has had a chance to see the actual tests. Within those limited circumstances; that is, if the Company ever in fact is ordered to disclose the tests and does in fact disclose the actual tests as a result of a final court order, then I would be agreeable to having the arbitrator listen to any additional argument or evidence based upon the disclosure of the tests which might affect his decision with respect to the substantive issue in the grievance. This signed letter will suffice for that purpose.

In view of the fact that ultimate disclosure through a court test would take several months or possibly years, it does not make sense to hold up the arbitration decision for that amount of time. I feel the record is complete in the case before you, and you ought to decide the issues and then let the chips fall where they may with respect to the National Labor Relations Board case. I believe Mr. Lewis is agreeable with this procedure and, if so, he will sign this letter and forward the original to your attention.

Thank you for your patience and cooperation in this regard.

Very truly yours,

/s/ **RALPH H. HOUGHTON, JR.**
 Ralph H. Houghton, Jr.
 Fischer, Franklin & Ford
 Attorneys for the Detroit
 Edison Company
 1700 Guardian Building
 Detroit, Michigan 48226

ACCEPTED:

/s/ **CLEM LEWIS**
 Clem, Lewis, for and on behalf of Local 223, Utility Workers Union of America, AFL-CIO
 1717 Grant Deneau Tower
 Dayton, Ohio 45402

General Counsel's Exhibit No. 14

NATIONAL HEADQUARTERS
 Grant/Deneau Tower, Dayton, Ohio 35402
 Code 513-223-0125

May 15, 1974

SUBMISSION QUESTION FOR RESUMPTION OF
 HEARING IN RE DETROIT EDISON ARBITRATION
 GRIEVANCE PMO-123 AAA CASE 5430 0720 72

WHEREAS: The above case was originally heard by Arbitrator Dallas Jones and

WHEREAS: The parties, Detroit Edison Company, as Management, and Local 223 Utility Workers Union of America AFL CIO, as Union agreed that the same arbitrator should hold jurisdiction regarding the implementation of the Award—and—

WHEREAS: There were some questions as to the exact submission for the resumption of hearing—

NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

The precise questions which the Arbitrator will decide and which will be in front of the arbitrator is as follows:

"Whether the Detroit Edison Company has properly implemented the award in accordance with the opinion attached thereto"?

/s/ C. J. LEWIS
 C. J. Lewis, for the Union

Respondent's Exhibit No. 1

MONROE POWER PLANT
 First Step Meeting
 PMO-123
 February 22, 1972

REPRESENTING MANAGEMENT: REPRESENTING THE UNION:

P. Murphy, Jr.
 F. E. Agosti
 F. J. Locke
 W. L. Roskind
 W. J. Stromp

R. Sprayberry
 F. Domosic
 B. Wright

UNION POSITION:

1. Violation of Article VIII, Section 38 and Article IV, Section 2.
2. Article VIII, Section 38: "If a vacancy occurs—a notice of such vacancy shall be posted for a period of five (5) days in the bargaining unit in which it occurs—division".
3. Both F. Locke and W. Stromp were informed at the time they were in violation because the vacancy was posted plant and department wide simultaneously.
4. The Union feels that Management then knew who all the applicants were and this is not fair to the plant personnel who applied.
5. Article IV, Section 2, the union feels this is to be a by-pass of plant personnel.
6. The Union believes that the men passed the test according to past standards.
7. They have the basic qualifications for the job posted.
8. The plant personnel should be promoted to the position (Instrument B).

9. PC-527 and 529 (Step 2) further substantiates the Union's position in this case.

10. The Union is only familiar with the test that classifies the results as acceptable, recommended and not recommended.

MANAGEMENT POSITION:

1. The plant personnel were given first opportunity before all other applicants.
2. Out of plant applicants were not received until after the test results of Monroe personnel were reviewed.
3. The PC-527 and 529 cases involved posted requirements of acceptable and recommended preferred.
4. These two cases were not based on test results, but outside experience Head and shoulders.
5. June 1970, the Technical Engineers realized that since background in itself was not sufficient for selection, a test that would better indicate aptitude was needed.
6. Since this test was a three (3) level test (acceptable, recommended and not recommended) it was decided to adjust the test to two level.
7. The test is the only tool available to evaluate individuals' aptitude.
8. This test was redeveloped by Employment Department and was available for use as of September 21, 1970.
9. The test is based on aptitude and not job knowledge.

DISCUSSION:

The Union was not consulted on this new test, and therefore, the Union feels it was arbitrary decision by Management. The Union also would like to know what the cut-off point is on the old and new test. Also, what is the differ-

ence between the two tests. The point of acceptability is arrived at through the use of a formula, there is not a percentage score as such. The present test is the same except for the 12 minute section on personality. The test was remodeled to the present two level from the three level and the cut-off point was adjusted. This adjustment was validated through a sample of 33 employees presently performing the work as related to their test results.

The current terminology applied to the test results are: acceptable and not recommended. The Union feels the new cut-off point used by Management is not only unfair, but unknown. The unfairness developing from the cut-off point being raised. Management feels that employees who were in the previous gray areas, were the lesser capable persons. This was determined by comparing their test results to supervisors work performances of the individuals.

The Union stated that the present men on the job are still on a trial period, therefore, the six senior men at Monroe should be given the opportunity to demonstrate their abilities in the classification. Employment did agree that the cut-off point was their decision but only after reviewing all necessary data and performance reviews of individual performing within the job. The Union asked if employment would furnish scores of the Monroe personnel. Management felt that furnishing the results would not accomplish anything.

The applicant who had previously been rated acceptable was re-evaluated under the present system and found not recommended.

Mr. Murphy will answer in writing.

M. J. Stromp

xxx/xx [illegible]

Respondent's Exhibit No. 2

Production Department—Monroe Power Plant

February 25, 1972

Memorandum to:

Mr. R. Sprayberry

Chairman—Monroe Division

Local 223, UWUA, AFL-CIO

SUBJECT: Grievance PMO-123—First Step

I have reviewed the facts as presented by the Union and Management on grievance PMO-123.

It was agreed by Management that Article VIII, Section 38, was not followed. Posting of the instrument Apprentice job was made department wide. However, it is my understanding that when this was pointed out by the Union, a verbal agreement was made that plant applicants would be reviewed and tested before any other applicants was reviewed. I have been assured that this procedure was followed.

Mr. Locke, Technical Engineer, requested on the bid, that applicants acquire a rating of "recommended" on the Aptitude test as given by the Employment Department. The Aptitude test being used by the Employment Department to test applicants for this job was reviewed, revised, validated and made available for Department use September 27, 1970.

Mr. Roskind of the Employment Department has assured me that validation of the test, and establishment of the acceptable score for determining successful applicants, is justifiable. Further, Mr. Roskind informed the union and Management that scoring on the present test is either "acceptable" or "not recommended". The present acceptable rating is slightly lower than the former recommended rating.

Therefore, I must deny this grievance.

/s/ Paul Murphy, Jr.

Paul Murphy, Jr.

Superintendent

Respondent's Exhibit No. 3

Minutes of Grievance No. PMO-123 - Step 2

Production Department—Monroe Plant

May 19, 1972

Representing the Union: Messrs. Baker, Dankow, Domosle, Johnson, Lovelady, Muegge, Wiley, and Wright

Representing Management: Messrs. Locke, Marchand, Murphy, Pence, Roskind, Stromp, and Thomas.

Statement of Grievance

Article VIII, Section 38, Vacancies. Posting Notices of; Article 4, Section 2—Disagreement between Union and Management.

The Union feels the testing procedure used was unfair in filling the six vacancies in the Instrument Shop. The bidders from Monroe Power Plant should have been selected. Restitution sought—the six senior men from Monroe be placed on the Instrument job.

Union Position

1. The Union reaffirms the positions as taken in the Step 1 meeting.

2. The jobs in question were filled from outside the Monroe unit. It is the Union's contention that had the bidding procedure been followed, the jobs would have been filled from within the Monroe unit.

3. Article VIII, Section 38 Par. A states: "If a vacancy occurs in any one of the beginning units covered by this Agreement and such vacancy is not filled by promotion or transfer within the group, a notice of such vacancy shall be posted for a period of five (5) days in the bargaining unit in which it occurs and a copy sent to a Union divisional officer designated by the respective division."

4. Mr. Murphy acknowledged the error in posting department wide instead of first posting within the Monroe unit.

5. Management has revised their testing and grading procedure in relationship to the instrument job. This was done without the knowledge of the Union.

6. These revisions and re-evaluations took place while the Conners Creek grievance were in progress and it appears that Management didn't act in good faith.

7. This job is a learning type job and should be filled with that thought in mind.

8. Management has denied the Union the test scores on the grievants. There can be no "head and shoulders" difference if a comparison cannot be made.

9. The Union attended meetings on training and learning that were offered to employes. A Mr. Kelly talked to the Union about the "DuPont" type training that is used at this plant. He stated that employes could progress at their own pace and it would be near impossible not to complete the course.

10. The Union would refer to Mr. Nugent's answer to PC-527 and 529.

"After reviewing the facts presented by plant management and the arguments put forward by the union and relating them to the job in question, Instrument Repairman 3rd, I agree with the Union, i.e., since this is a starting job, possession of some higher education does not necessarily constitute a 'head and shoulders difference' in qualifications. Had the vacancy been for some job other than a starting job, such higher education as possessed by Mr. Cheaves would have established a 'head and shoulders' difference."

11. The Union is concerned with those employes who are just below the "acceptable" rating. There is some question

as to the head and shoulders difference between those employes and the employes who are just over the acceptable score.

12. Management was aware that there were additional applications from other plants, when they reviewed the applications from the bargaining unit. It is because of this that the Union feels the selection wasn't handled in accordance with the agreement.

13. Management can take the grievants under the trial period provision of the agreement and ascertain if they could do the job.

Management Position

1. Management reaffirms the positions and answer as taken in the Step 1 proceedings.

2. This was not a new testing procedure. It was the same basic test, only now the employe's standing was evaluated on the basis of two segments of the test rather than the old method of three segments.

3. The levels of grading the tests have been changed from "recommended, acceptable" and "not recommended" to either "acceptable" or "not recommended." The acceptable score would be rated slightly below the old "recommended" level.

4. There was a mistake made in the posting and the Union was well aware of the error and they agreed to proceed as Management had suggested. The bids from other plants were not reviewed or even seen until after the Monroe people had been tested and evaluated. None of the Monroe people were in the "acceptable" range of the test results.

5. The purpose of the test is to determine the aptitude of the applicants for the job for which they are applying. It is not an intelligence test.

6. Management doesn't use the trial period when the applicant doesn't possess the aptitude necessary to successfully qualify for the job.

7. In regard to Mr.Kelly's statement to the Union, it should be that if a person can read at the 6th grade level he should be able to pass the course. Mr. Kelly was speaking of a course not the fact that a man would be successful in a job classification.

8. The Union has asked for test scores, but they haven't named the grievants other than the senior men at the plant.

Disposition

Mr. Pence will answer.

/s/ D. G. THOMAS
Union Relations Department

DGT:ghh

Respondent's Exhibit No. 4

THE DETROIT EDISON COMPANY
2000 SECOND AVENUE
DETROIT, MICHIGAN 48226

PRODUCTION DEPARTMENT

May 24, 1972

Mr. Peter P. Johnson, President
Local No. 223, UWUA, AFL-CIO
2757 Grand River Avenue
Detroit, Michigan 48201

Dear Mr. Johnson:

SUBJECT: PMO-123, Step 2

The Union cites a violation of Article VIII, Section 38, Posting Notices of Vacancies and the testing procedure used was unfair in filling of six job vacancies in the Instrument Group at Monroe Power Plant.

The Industrial Psychology Division formerly reported three levels of performance on the aptitude test for Instrumentmen: recommended, acceptable, and not recommended. On September 21, 1970, the Industrial Psychology Division changed their method of reporting performance on the aptitude test to acceptable or not recommended. This was done as a result of revalidation of the test battery.

Management acknowledges that an error was made when the job was posted department-wide without prior posting in the plant only. The Union brought this matter to the attention of Management and agreement was reached with the Union that the bid would be processed in such a way as to have the same effect as if the posting had been made at the plant first before going Company-wide. This agreed upon process was followed. The Monroe Plant employees who bid on the job of Instrumentman were given full con-

sideration for the job prior to the employes from outside the plant.

Ten (10) Monroe employes applied and were considered prior to bids from employees outside of Monroe Power Plant. Nine (9) were scheduled to take the test for the first time under the new standards. Two (2) failed to show up for testing. The other (7) were tested and their test performance was evaluated as "not recommended". One man, Mr. Wiley, who was tested under the old standards was evaluated as "acceptable" under the old standards (prior to September 21, 1970). His test was reevaluated at the time of the bid in accordance with the new standards. His test was evaluated as "not recommended" based upon these new standards.

I have discussed Mr. Wiley's situation with the Industrial Psychology Division. They inform me that they would be willing to review his performance with him with consideration for reevaluation.

In view of the above, I find no violation of the Agreement and this grievance is denied.

Yours truly,

/s/ W. K. PENCE
Assistant General Superintendent
of Production /

Respondent's Exhibit No. 5

THE DETROIT EDISON COMPANY
2000 SECOND AVENUE
DETROIT, MICHIGAN 48226

August 29, 1972

Mr. Peter P. Johnson, President
Local 223, UWUA, AFL-CIO
2757 Grand River Avenue
Detroit, Michigan 48201

Dear Mr. Johnson:

Grievance No. PMO-123

The Union contends that the Company is in violation of the Agreement between the parties by the selection of applicants to fill a number of vacancies in the Instrument Shop at the Monroe Plant. Specifically, the Union claims a violation of Article VIII, Section 38, "Posting Notices of Vacancies".

This Section contemplates that job vacancies shall be filled by promotion or transfer within the group. Here, before any attempt to fill the vacancy from the group had been made, the Plant posted that vacancy across all the bargaining units of the Production Department. The error in not first attempting to fill the vacancies from employes of the group was properly brought to Management's attention. As a result, Management recognized the error and considered only those employes from the Monroe group who had applied. Management determined that all of the vacancies could not be filled from this group and only then considered applicants from outside that group. Thus, only the Monroe employes were considered in the first step and no employe's contractual rights were violated by the posting procedure.

A second complaint of the Union is that the men at Monroe were disqualified because of tests and the Company did not demonstrate a "head and shoulders" difference between them and those who were selected. They also point out that changes in the test standards were not discussed with them, nor were they informed.

A basic qualification is a standard that must be met before a comparative evaluation can be made on a "head and shoulders" basis. Basic qualifications include, among other things, attendance records, specific educational attainment, driving ability, physical abilities, specific experience, licenses, and meeting a test standard. In these areas, a person is qualified or he is not, and if he is not qualified, further consideration cannot be given. It would certainly be a disservice to all employes who do not apply for a position because they lack a basic qualification to give consideration to those who apply regardless of their qualifications.

In this instance, one basic qualification was that applicants have been found acceptable under a new test standard established in 1970 after the requirements for the position of Instrument Man had been restudied and reevaluated. It has been the custom to inform the Union of test revalidation studies, but in this case the explanation and information to the Union were inadvertently overlooked.

All of the grievants are from groups outside of the Instrument Shop and are applicants for a beginning position in a *new* work area. They all failed to meet the standard of acceptability established in 1970 for entry into the training job for Instrument Men at Monroe.

One man, Mr. Wiley, had met a standard under the old test levels but does not meet the present standard established as a result of the restudy and reevaluation of the job in 1970. He accepted an opportunity to be retested recently with the same results. He also thoroughly discussed his test results with the Testing Division.

It was evident that the Union does not have a complete understanding of test validation, establishment of standards, development of test batteries, and similar information relating to the Company testing program. To that end, I am directing that a meeting for Union Officers and Chairmen be arranged to enhance their understanding of the Company's objectives in the testing area. A mutually acceptable date will be worked out prior to November 1, 1972.

This grievance is denied.

Yours truly,

/s/ R. W. SCHLEICHER
R. W. Schleicher
President's Delegate

Respondent's Exhibit No. 6

LOCAL NO. 223

UTILITY WORKERS UNION OF AMERICA, AFL-CIO
 2757 GRAND RIVER AVENUE
 DETROIT, MICHIGAN 48201
 Telephone WOODWARD 1-2901

October 27, 1972

Mr. W. G. Meese, President
 The Detroit Edison Company
 502 General Offices
 2000 Second Avenue
 Detroit, Michigan 48226

Dear Mr. Meese:

In Re Grievance PMO 123

The answer of Mr. R. W. Schleicher, who acted as your Delegate in the above-captioned matter, is completely unacceptable to the Union.

Therefore, we are requesting that the American Arbitration Association proceed under its rules and the applicable provisions of the Contract extant between us to resolve this issue.

Yours truly,

/s/ PETER JOHNSON
 Peter Johnson, President
 Local 223, UWUA, AFL-CIO

CERTIFIED LETTER—RETURN RECEIPT REQUESTED

Respondent's Exhibit No. 7**AMERICAN ARBITRATION ASSOCIATION**

In the Matter of the Arbitration Between
THE DETROIT EDISON COMPANY
 and

UTILITY WORKERS UNION OF AMERICA, Local 223

Grievance Number PMO-123

Case Number 5430 0720 72

Proceedings had and testimony taken before a Board of Arbitration (Dallas L. Jones, Chairman; Raymond W. Schleicher, Company Member, and Douglas McIlroy, Union Member) at the Pick-Fort Shelby Hotel, Detroit, Michigan, on Wednesday, May 23, 1973, commencing at 9:30 a.m.

APPEARANCES:

FISCHER, FRANKLIN and FORD, 1700 Guardian Building, Detroit, Michigan 48226

Appearing for the Company

By: RALPH H. HOUGHTON, JR. Esq.

CLEMENT J. LEWIS, Director of Services, UWUA-AFL-CIO, Grant Deneau Tower, Dayton, Ohio 45402

Appearing for the Union

• • •

[12] (By Mr. Houghton) It was posted one time. The bids were received and initially only the Monroe Power Plant people were considered. And then ultimately, because they were not found qualified, the company did go and consider bids from other power plants in the system. I would point out that ultimately in this case the employees selected to fill these vacancies were from other plants. They were all Detroit Edison Company union-represented people.

The people at Monroe that bid on the job were determined by the company not to meet one of the basic qualifications, and that is the issue in the case.

* * *

[16] Just prior to the posting for this particular job for the openings in Monroe, these particular tests had undergone a revalidation study by The Detroit Edison Company. Complaints had been registered regarding the caliber of people that were being received into the program based on the old testing procedure and as a result the entire battery of tests were reconsidered by the psychologists in order to determine whether the predictability in results could in any way be improved. As a result of those studies certain changes were made just prior to the posting of these jobs. The basic change was two-fold. First, one of the three tests was dropped so that the battery of tests consisted only of two tests. That is, all the people bidding for this job took two tests.

The second change was to make an alteration or change in the cut-off point or scoring. Rather than have the [17] old system of "recommended," "acceptable," and "not recommended," it was changed to a two-tier system with the feeling that that fine three-tiered discrimination couldn't really be made and wasn't getting the desired results, so that now under the procedure that was utilized in this case and in the future there is a two-tiered procedure, and that is "acceptable" and "not recommended." So you are either "acceptable" by the results of the test or you are "not recommended," and those are the terms that are used in evaluating the particular candidates for these job openings.

You will note on the job notice the term "recommended" was used, and really that is not completely correct, because the tests that were being used at that time indicate that under the two-tiered system the terminology should have been "acceptable." Basically they are the same, but there is a slight difference. In fact, the difference in this par-

ticular case would work to the employee's benefit, for the "acceptable" category that we are talking about is actually slightly broader than the "recommended" category stated in the job posting so that anybody that actually met the "recommended" category in this job posting would in fact be "acceptable" under the new standards and in addition certain other people would also be considered. The "acceptable" category was broadened out.

* * *

[28] (By Mr. Lewis) The fourth item I want to bring to your attention is we don't have any dimensions on what is called "head and shoulders." I don't know what "head and shoulders" is. I don't think you do yourself. I don't know whether it is this much (indicating) or a wider space (indicating). I dont know whether it is the difference between 60 and 80 or the difference between 40 and 80, or whether it is the difference between A and B, or C and A, or B plus and C or whatever the case might be, using the academic method of grading, if you please. That's one of our problems in this case and it's been one of our problems in other cases here which we are going to bring you.

So our position is the tests are discriminative. Therefore, management is arbitrary and capricious. Management could give any form of tests to people and find the applicants to be "head and shoulders" above others depending on what kind of test they wanted to serve them. It is no problem at all if you want to aim at a certain predetermined result to get people who you will find to be "head and shoulders" above others or "head and shoulders" below others. It is a very simple matter just to go over your crowd and decide what kind of a test you want to give them.

* * *

We have no control over what is known as the cut-off scores. We don't know what they are. We don't know whether 80 is "acceptable" or 60 is "acceptable" or 40 is

"acceptable" or 90 is "recommended" or 80 is "recommended" or 60 is "recommended." We have no control over the correlations in the test batteries that Mr. Houghton spoke of. They are all somewhere up in the blue. Our men never see them. Our union [31] never sees them. They could be concocted or bought from vendors. They could have all kinds of scoring keys.

We don't know anything about them. We don't know what questions go into the tests or whether such questions are relevant. They could very well ask the boys something about Einstein's Theory. I'm sure they don't need Einstein's Theory to fix instruments, fix meters. They could very very well ask them about trigonometry or social science or law or business administration. I don't know what they could ask them.

Mr. Houghton says they are validated. Yes, I know. They are validated in somebody's mind, yes. They are not validated by the union. The validation is never even discussed with the union. It is served up to them finally. The product is served up to them, that's all.

For all of these reasons I went to the Labor Board and I filed a charge against the company that said I wanted the actual tests. Mr. Houghton told you the whole question here was tests, tests, tests. I agree with him. Largely he is correct. I don't think it's the total question, but it is nine-tenths of it, because if the man doesn't get by that test, he's not admitted to the training for the job. He's not admitted to a trial period on the job. It's an obstacle. It's an impediment, that test. Unless he gets by it, he's not going anywhere.

[32] So I said: If that is so, then I want the test. I want to see what the tests are. I want to see if they are asking the boys in the test questions like "Have you been beating

your wife lately?" or "Have you joined the Moose Club or the Elks Club?" or "Are you a member of the Masons?" Let's see what the questions are.

Management said: No. We will not give you the tests. They are confidential.

So as I say, I went to the Labor Board. I asked the Labor Board to please give me the tests. Under the statutory rights of management to supply information, I felt we had it coming. As long as the tests were paramount in this issue—and Mr. Houghton says they are—then I want to see them. I want to see if there are some questions there which are absolutely ridiculous vis-a-vis fixing instruments and as related to repairing meters and gadgets. I think I have the right. That situation is pending. They haven't issued a decision on it yet.

• • •

[46]

EMIL RUCH

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HOUGHTON:

Q. Mr. Ruch, your name and position with The Detroit Edison Company? A. Emil Ruch, Director of Union Relations.

Q. When were you made Director of Union Relations? A. Last October.

Q. Prior to that time what position did you hold? [47] A. Union Relations Coordinator.

Q. And you held that position for approximately how many years? A. In that title on the order of a dozen years.

Q. And would you tell us for the record how many years

you have been involved with Union Relations at The Detroit Edison Company. A. More than 20 years.

Q. That encompasses both contract negotiations and the handling of grievances? A. It does.

Q. As well as day-to-day administration of the contract? A. It does.

Q. Mr. Ruch, your testimony in this case perhaps will be rather brief, but I would like you to address yourself to certain of the relevant contract clauses and explain for us the history of these clauses and utilization of these clauses, and in particular I would like to turn first of all to Article VII, Section 13.

When was the language that we currently find in the agreement first placed in the agreement? A. In its present form, and to the extent that it uses words like "significant difference" and "head and shoulders difference," this language was inserted in the contract for the first time in 1969.

[48] Going back down through the history, however, of things, the predecessor language to this language runs back a good many years. Prior to terminology like "significant difference" and "head and shoulders difference," the contracts for many, many years, going back to 1952, carried such language as "qualifications and abilities being relatively equal"; only then will seniority prevail.

Prior to 1952 we had still different language where seniority was uppermost and held a position in the contract of much greater strength than it has held since 1952.

Q. So we are sure that we understand the chronology of events in the development of this language, which is perhaps the key language in this case, would you trace for us the development of that language in this particular clause from 1952 to date, including demands that the company

or the union may have made with respect to changes, whether those changes were agreed upon. A. Well, going back to the 1950 contract, we had this type of language: "In promotion of employees covered by this agreement to unfilled positions within the same bargaining unit, seniority and qualification shall govern." That was 1950.

Going on into 1952, there was the first strike [49] by the Utility Workers, and coming out of that turmoil the company demanded and got a shifting emphasis from seniority to qualifications and abilities, and the language then took this turn and became this kind of language: "In promotion of employees covered by this agreement to classifications within the same bargaining unit, seniority will govern whenever qualifications and abilities of the employees being considered are relatively equal."

During the 1952 turmoil the union was demanding that seniority prevail entirely in all cases. Reading from the union's demands of 1952—I am reading from page 21 of their demands—their demand on this point was this:

"All transfers and promotions of employees covered by this agreement, employees with the greater seniority shall receive preference."

So that the point here I am making is that the fundamental question that faces the Arbitrator here today is one that the parties have been quarreling about for many, many years. Today's grievance, as you see on the face of it, is to the effect that the senior employees should get the promotion irrespective of anything else. That is what the union was trying to get back in '52. Of course, they never got that or anything like it.

[50] Going on into the next point in history that bears on this subject, we come to 1961, and in 1961 the union

approached the same matter from a little different direction. Reading from their demands in 1961—I am reading from page 2 of their demands—the union stated it this way:

"Amend this section—" speaking of Article VII, Section 13—"to provide automatic promotional trials for senior employees."

Going on then to the next point in history which bears on this matter, we come to 1966. In 1966 the union's demand—and I am reading from page 3 of their list of demands—on this subject went as follows:

"Revise promotion factors so as to give greater weight to seniority where ability is sufficient and adequate as contrasted to being superior."

During the 1966 negotiations this subject was given an awful lot of attention and the parties at the close of the negotiations settled the question on the basis of the understanding that there would be a post-negotiations high-level committee which would discuss the subject of seniority versus abilities and qualifications in promotions. This high-level committee was to consist of, for the [51] management, two vice presidents, Mr. Leahy and Mr. Wagner, and two managers, Mr. Lundgren and Mr. Schwab; and for the union, Mr. Clem Lewis, present here today; Robert Reynolds, John Barman, Robert Fisher, George Eskro, Peter Johnson, today's president of the union; and Herbert Neatherton.

Following the 1966 negotiations and in line with this commitment, this high-level committee did meet and did discuss the subject of seniority versus ability and qualifications in promotions, and the company members of the committee submitted to the union a report dated November 18, 1966, addressed to the President of the local, Mr. Robert Reynolds at that time, and set forth a number of

items concerning the whole subject, and in particular item numbered 4 on page 2 of the document which reads as follows:

"Aptitude tests will be used where they improve our ability to select well qualified employees. Where such tests are used for certain jobs, they are fully validated; that is, the studies have been made to determine that there is a definite relationship between performance on the test and later performance on the job. Such test results are reported to departments only in terms of whether or not applicants meet a specified standard. They are not used for [52] differentiating among qualified candidates. The union is informed of validation studies which are being made in groups it represents."

I read only this part of this document to point out that back at that time Mr. Lewis and other people in the union were attacking the company testing programs even then but that the company gave no ground to the union on the whole matter, and this was the end of the 1966 handling of the whole subject.

Going on then to the next point in history which has any bearing on the matter brings us to 1969. In 1969 the union demand on the subject was as follows, and I am reading from page 4 of the minutes of the first negotiating meeting, which was held on April 17, 1969. There the union stated their demand as follows:

"Give senior qualified man a trial on promotions."

The point of their demand again was that people should be given trials irrespective of their potential or test or anything else. Any applicant should be put on any job he wants according to seniority and given a trial period. Of course there was no agreement to that at that time or any time, prior or since.

In the 1969 negotiations the parties shifted [53] from the language that was: "Seniority will govern whenever qualifications and abilities of the employees being considered are relatively equal" to today's language which gets into the "head and shoulders" and "significant difference" phraseology.

At the time of the 1969 negotiations and for sometime prior thereto, the management had become more and more aware of the fact that in the arbitration field, arbitrators were handling contracts that had language like our old language, speaking of qualifications and abilities being relatively equal, and deciding questions of whether or not two contenders were relatively equal in this manner: Unless there was—and the arbitrators were using terminology like this—a "head and shoulders difference" or a "significant difference," then the conclusion ought to be that they are relatively equal. So from the standpoint of the corporation, this shift from the old language to the new language was more a shift in phraseology than a shift in substance.

The next point in history where the parties got into the matter would be in 1972. In 1972 the union approached the subject in this way, and I am going to read from minutes of the 1972 negotiations, these minutes being the minutes that were widely distributed to all the union [54] officials and to the membership-at-large and two supervisors in the company. I am reading first of all from the minutes of the second meeting, which was held on April 20, 1972. There the union stated its demand on the subject as follows:

"The union shall be furnished copies of all tests given to employees. Union shall have the right to review all test results. All tests shall be job related and only for the job or position applicable."

At that particular meeting on that day the union was reciting its demands and the corporation was not replying or responding at that time, just trying to get a feel for what the union was driving at in all its various demands.

So we go on to the seventh meeting, which was the first time that the parties got back to that subject. I am reading from the minutes of the seventh meeting, which meeting was held on May 9, 1972. I am reading from page 5. There the opinions reflect this:

"Management cannot accept this proposal by the union. To do so would destroy the testing program. It is the company's position that all of its tests relate to the job classifications [55] for which they are used. In answering a question from the union, management stated that test results do not come under the purview of Article VIII, Section 32. This has never been done and it is not management's intention to do so."

"The union feels that it represents the employees and therefore it should be privy to the test itself and the test results. The union cited an example where Underground Lines employees failed a test en masse, but upon taking the test again, several of the employees passed. Management cannot divulge tests or test results to people who are not qualified to interpret them. To release such data would destroy the integrity of the test itself."

"The company's tests are accurate and have been validated. To prove this, the company is now engaging an outside source to study the tests and confirm their validity. Presently the Department of Justice is examining the company's test. The company believes in its testing program and is more than willing to discuss its testing program with the proper authorities and/or qualified personnel. Otherwise it is not."

[56] "The union inquired as to the possibility of an employee taking a test over again after having failed it once. Also in the Production Department. The union has been informed that the latter department administers a test that covers not only the APPO classification but other classifications as well.

"Management stated that as a rule an employee is not allowed to take a test over upon failing it initially. However, there may be extenuating circumstances where an employee would be allowed to take a test over again, but these cases are evaluated on an individual basis. Also the union must remember that the results of a test may be only one of the criteria used to evaluate an individual. That is, other factors are considered; that is, attendance record and so forth."

The next time that the parties got back to the subject was at the eighth meeting in 1972. Again I am reading from the minutes this time of the eighth meeting, which was held on May 11, 1872. I am reading from page 2. Here the minutes say:

"Management stated that with respect [57] to an employee being retested after having initially failed a test there have been occasions where an employee was allowed to take the test over again. However, these cases are handled on an individual basis only. Over the years, the company's tests have been designed by competent professional psychologists. The company's psychologists are ready to discuss an employee's test results with the employee on an individual case-by-case basis.

"There are some psychological tests (aptitude tests) that can be taken over again and the results would not change. Each case with respect to retesting has to be evaluated individually. There are cases where retesting is not advisable.

"In answering a question from the union, management stated that at one time the instrument repairman job classification tests contained three levels of recommendations; that is, 'recommended,' 'not recommended,' and 'acceptable.' This was changed to two levels, 'recommended' and 'not recommended' because the job has changed somewhat over the years. All our tests are validated in [58] accordance with the most stringent professional standards.

"The union does not agree that retesting should be on an individual basis. The union represents the employees and therefore the union should become involved with the determination as to when and if an employee should be retested. The company's tests do not consider the 'head and shoulders' concept, nor do the tests compensate for an individual's background. The union feels that, generally speaking, the company's testing program is not job related; that is, a test that measures academic knowledge, when the job itself involves manual labor. The union knows of instances where an employee has failed the test and has performed successfully on the job. Also the union knows of instances that occurred one and a half years ago where employees were denied an opportunity to be retested.

"Management stated that the company was willing to consider each case on an individual basis as each case would be different. It is the company's position that its tests are highly professional, administered by professional [59] personnel, objective and job related. Management is willing to have Dr. Worbois discuss this subject further with a union committee. The union stated that it would consider this."

For the record I should explain that Dr. Worbois is one of the industrial psychologists employed by The Detroit

Edison Company and is the director of that division of the company.

The next time the parties got back to this subject was at the ninth and tenth meetings. There we have a combined set of minutes. The tenth meeting was held on May 18th, at which time this subject was discussed again, and I am reading from page 5 of the set of minutes for that meeting, and there the minutes say:

"The union maintains its proposal and reaffirms its position regarding this proposal as stated in the minutes of the seventh and eighth meetings, dated May 9 and May 11, pages 5, 6 and 2 respectively."

"Management reaffirms its traditional position, which is that nothing in the contract gives the union or the employees a right of access to employment tests or results. Management is willing to discuss the integrity of our [60] testing program with fully qualified professional experts."

The next time the parties got back to the subject was on May 25 at the twelfth meeting. I am reading from the minutes of the eleventh and twelfth meetings, page 2. There the minutes say:

"The union would be interested in hearing Dr. Worbois explain the company's testing program sometime after negotiations."

The matter as far as the negotiations then was dropped at that point. The union tried in negotiations to get management to turn over test questions, and the union failed in that attempt.

In conformance with the understanding which was reached in the negotiations, there was a post-negotiations meeting in the fall of 1972 at which Dr. Worbois, Mr. Ros-

kind, a number of people from the corporation's Union Relations Department, all of the union chairmen of Local 223 had a full-scale discussion of the company's testing program and at which meeting the corporation, particularly in the person of Dr. Worbois, laid itself open with complete freedom of exposure to questions raised on the floor and answered by Dr. Worbois in the main, but also by Mr. Roskind. As a result of the 1972 negotiations then, were there any [61] changes in the contract in this regard?

A. There were none.

Q. Is there now, Mr. Ruch, or has there ever been any provision in the contract that allows a senior applicant the right to a trial period on the job prior to selection? A. There is not now and there never has been since 1952.

Q. There is a trial period mentioned in the contract, is there not? A. Yes, sir.

Q. What does that address itself to? A. It addresses itself to the situation where after selections have been made, after "head and shoulders" aspects have been considered, after men have been selected, sometimes junior men, sometimes senior men and after the appointments have been made, then the successful applicants are given a trial period.

Q. Just for the record, where do we find the contract language that we read in conjunction with Article VII, Section 13 regarding the posting procedures and so forth? A. Article VII, Section 13 should be read in conjunction with Article VIII, Section 38.

Q. And that latter section then spells out the posting procedures and requirements? A. Yes, it does.

[62] CROSS EXAMINATION

By MR. LEWIS:

* * *

[63] Q. I see. Does the company give every employee who it promotes to a job a test? A. No. It applies and

uses tests only where it has tests which can be sensibly used and applied.

Q. Sensibly used? A. And there are situations where tests are not used.

Q. For example? A. I can't cite specific examples. Someone else who will testify after me will be in a better position to answer that question. But the point of it is that we use what we can and what is available to us to make the best possible judgments we can in making selections of employees. In some areas we are better equipped than in others.

Q. Well, is it possible, for example, that many instrument men were promoted in this company without ever having taken a test at all? A. It is possible.

Q. Is it possible that employees of this company were promoted to all kinds of journeymen jobs in the past without ever having taken a test? [64] A. Yes.

Q. Do you know that they have? A. Restate your question. I don't know how to answer it.

Q. Well, do you know that there have been countless employees—I don't know how many—promoted to journeyman-level jobs in this company without taking any test? A. There have been employees promoted to journeyman type jobs without having taken psychological tests.

Q. This grievance was filed, I believe, January '72; is that correct? A. Yes.

Q. Now, you said in 1972 that the union leaders had a meeting with Dr. Worbois about the whole general atmosphere of testing. Is that correct? A. Yes.

Q. Was this meeting before this grievance or after this grievance? A. It was after the grievance was filed and it was after the 1972 negotiations.

Q. Let me get that straight. Dr. Worbois' meeting was after the grievance was filed? A. And after the 1972 negotiations.

Q. Dr. Worbois didn't address himself to this specific grievance, though, did he? [65] A. No. The meeting with Dr. Worbois came about as a result of the 1972 negotiations, and the subject of these particular tests concerning the instrument men was thoroughly discussed at that meeting, but beyond that the whole general subject of psychological testing was thoroughly discussed.

Q. Now, you say that some of the union demands in the past have been that the union wants all tests and all test results; is that correct? A. Yes.

Q. You realize that in this particular situation we are not looking for all tests and all test results; we are looking for the tests and results concerned with just this grievance. Do you realize that, Mr. Ruch? A. If you say so. I'll leave that to you to establish.

Q. All right. We are. A. I really don't every very often know quite what all Clem is asking for.

Q. I think your discussion was kind of a rambling story, really, rather than a direct answer to questions and I think it dealt with general negotiations, generalities in negotiations; that the union wants all promotions made on a certain level or a certain way, wants all tests and all reviews. Isn't this what you were talking about? You weren't addressing yourself to a particular case, were you? [66] A. No, I was not.

* * *

[74] What is "head and shoulders," mathematically speaking? A. There is no mathematical definition.

Q. What is it from the standpoint of grading people? A. With respect to this case?

Q. Any case. A. Well, if I can answer the question by bringing it home to the facts at hand—

Q. All right. A. —we have a "head and shoulders difference" between two employees when one employee on the psychological testing tests out as "recommended" or "acceptable" and the other contender tests out as "not

recommended." There is a good example of our having then a 'head and shoulders difference.'

Q. There are no measuring sticks? Is that what you are saying? A. No, that's not at all what I said. You weren't listening, Clem.

Q. I thought I was. You said they test out to a point of being "recommended" or "not recommended." Is that what you said? A. You asked me a question and I—

Q. How do you grade the expression "head and shoulders difference"? A. Well, I used the example bringing it home to the case at [75] hand. Your question was along the lines of under what circumstances do we have a "head and shoulders difference," and I used the illustration of the facts of this case to say that we have a "head and shoulders difference" between two contenders when one rates out on the psychological tests we are talking about here today as "acceptable" or "recommended" and the other contender rates out as "not recommended." I said that there is a good example of our having a 'head and shoulders difference' between two contenders.

Q. But aren't you being vague in a sense or it is a vague territory we are in? A. I don't think I'm being vague in a sense and I don't think it's a vague territory we are in.

Q. Well, conceivably suppose somebody has 50 and another has 60. If we use arithmetical grading systems, is this a "head and shoulders difference"?

MR. HOUGHTON: How could he possibly answer that. 50 or 60 what? We've got to relate it.

MR. LEWIS: Percentage.

MR. HOUGHTON: Percentage of what?

MR. LEWIS: In a test.

MR. HOUGHTON: Percentage of right or wrong or percentage of what?

[76] (By Mr. Lewis) In the old days, when people went to school the teacher said you got 80 in the test, you got 70 in the test or you got 65 in the test. Now they say B plus and B and A and so forth. What would in your opinion be a "head and shoulders difference"? A. Well, if the difference between 50 and 60 means a difference between pass and fail or a mark of A versus a mark of B or particularly a mark of maybe C and D or D and E or pass and fail, then we are getting into "head and shoulder" differences and "significant" differences.

Q. Let me understand you on that now. Let's suppose the passing mark is 50. You are saying that one having 49 and another having 51 would constitute a "head and shoulders difference"? A. Yes, I'm saying that.

Q. And was that the intent of the parties when they wrote that section? A. Yes, it was.

Q. Then as narrow a space as that was "head and shoulders difference"? A. It was the intent of the parties that lines would be drawn and some would fall on one side of the line and others would fall on the other side of the line because everybody recognized at the time that that's life.

[77] Q. And are the lines generally known to people when they take these tests? A. Yes, they are.

Q. Are the lines known to the union? A. Yes, they are, the "line" being if you want to make out and succeed, you've got to come out with a "recommended" or "acceptable" rating. Otherwise, if you should come out with an unacceptable rating, you are not going to be accepted in the application for the job.

Q. You are not following me. A. I'm following very well.

Q. Is the line of 50 in my hypothetical grading system known to the parties when they take the test? A. I can't go along with you on your hypothesis because I don't know what you have in the back of your mind so I can't talk in those terms. But if 50 is the line that says those on

one side of it pass and those on the other side fail, then the employees know that in the tests they either passed or failed. To this extent they are informed that they made the grade or they didn't.

Q. You say the applicants are told that at the time they take the test? A. Well, they are told when they apply for the job, if you are talking about the case in point, that they must have an [78] "acceptable" or "recommended rating on the test.

Q. And that hypothetical 50 is a grade that you must attain or whatever it is? A. They are told that we have a hypothetical 50. Clem, I'm not going to get drawn into a loose use of terms here.

Q. They are not told that, in other words, nor is the union told that?

* * *

[94] But, Mr. Ruch, isn't the psychological testing the key and the crucial criteria in the whole promotion scheme in this [95] case that we are heretoday? A. Yes, it is.

Q. And isn't it by and large that in many of the cases now you cannot get admitted to training or a trial unless you get by that? Isn't that correct? A. That is true.

Q. And you don't even bother to examine physical condition, work history and disciplinary actions and everything else until the man first passes the aptitude or psychological test; is that right? A. That is true.

Q. What you are saying now is that the psychological test in general usually precedes all these other things? Is that what you are saying? A. Well, I'm not saying in what particular order we put these things, how we look at these things, but the practical man in looking at the various aspects concerning various numbers of contenders would go about it logically and he may very well start with how these contenders made out on a psychological

test and eliminate some on that basis, and then go to another aspect and eliminate some more on that basis. And if he is a thinking person, he will start at a place which is somewhat logical, and he most often would probably start with how they made out on the psychological testing. [96] Q. Before he'd consider anything? A. Before he'd go on to some other things, yes.

THE ARBITRATOR: Is there any objection to this, Mr. Houghton?

MR. HOUGHTON: I don't know. I haven't examined all the rest of it. If you have made all the points you want from it, I don't think we need it as an exhibit, unless you want him to read that into the record.

I just don't know what issue the other questions and answers raise, frankly, until I study it.

MR. LEWIS: Well, on page 2 of the document, Mr. Ruch already testified here today pretty much the same as he did in this deposition on the question of how we got to "head and shoulders difference," the language up to the present time, right?

MR. HOUGHTON: Correct.

MR. LEWIS: And more or less the chronology.

Q. (By Mr. Lewis) Down at the bottom of page 2 the question here asked: "Again how often in your experience is a senior employee by-passed on the basis of this provision?" That is the "head and shoulders" provision.

And you said: ". . . not very often. I guess we said less than 10 percent or less than 5 percent, I would say on that order." Is that correct? [97] A. If you carry it in the same vein of precision.

* * *

[110] LAWRENCE E. KANOUS

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

By MR. HOUGHTON:

Q. Mr. Kanous, would you give us your full name and position with the company. A. Lawrence E. Kanous, and I am the Director of Employee Training, Detroit Edison Company.

Q. How long have you been employed by The Detroit Edison Company? A. Since 1951.

Q. What group or department did you enter into in 1951? A. In the industrial psychology division of the Employment Department.

Q. Would you trace briefly your employment history from 1951 to date, explaining what job positions you have held and what general duties you have had in those jobs. A. I was hired into research assistant, industrial psychology [111] division at the outset and in that position was involved with various kinds of personnel research efforts directed at trying to improve the selection of various employees in various kinds of jobs; doing studies directed at improving safety conditions within the company. I also administered tests, counseled with employees who had taken tests, did research of that sort in that position; and then was subsequently promoted to research associate and then assistant industrial psychologist, and then in 1970 to my present position.

Q. Prior to coming with the Detroit Edison Company, will you tell us what professional training you had beyond high school. A. I have a Bachelor's Degree from Michigan State University in Psychology; a Master's Degree from the same university in Industrial Psychology.

Q. What, for our frame of reference, is the difference between the general field of psychology and industrial

psychology? A. I think I can best explain that by saying it is a similar difference as exists between the general field of engineering and the specific field of electrical engineering. Industrial psychology is a subdiscipline within the general field of psychology itself.

Q. And have you been working in the field of industrial [112] psychology during your tenure with the Edison Company? A. Yes, almost all of the time.

Q. Subsequent to acquiring your university education, have you had any further education, joined any professional societies or taken part in any activities of that sort? A. Yes. While employed with the company I completed all of the work required by the university at Wayne for my doctoral degree with the exception of the dissertation, and I am currently a member of the American Psychological Association, Division 14, which is the division of organizational and industrial psychology.

At the time that the Michigan Registration Act for professional psychologist was passed, I was certified as a certified consulting psychologist by the State of Michigan.

Q. You are licensed to practice and consult in the state of Michigan then? A. Yes.

Q. Mr. Kanous, after you came with The Detroit Edison Company, what job were you placed in at that time in terms of testing or determining whether certain batteries or groups of tests should or should not be utilized in connection with particular jobs? Did you carry on that function at all during your initial years? [113] A. Yes. At the outset I was given the task of revalidating some test batteries which had been developed prior to my joining the company in which there was reason to think that some significant changes had occurred in jobs and they were required to be restudied.

After that I was given an assignment in the Production Department to determine whether or not aptitude tests or

other devices could be used to assist in the selection of the kinds of individuals who should progress into the operating jobs in power plants.

Q. Now, in connection with those types of jobs, in later years did you ever have occasion to become a member of a task force that studied the layout for the instrumentation in some of the newer plants? A. Yes.

Q. And what did you do in that regard? A. Prior to the design of the Trenton Channel No. 9 Unit, the company had become aware that the complexity, the amount of control and display equipment that was proposed for that unit was of very significant magnitude, and it was the judgment of the company that some effort should be put to trying to design the plant, most particularly the control center of the plant, such that there was a good interface between the operator and his control and display equipment, [114] and also that the plant should be more maintainable in terms of the maintenance people's activities. That would include the instrument people.

Q. Was that same type of study or a similar study undertaken with respect to the Monroe Plant? A. Yes.

Q. Earlier in your testimony you referred to reviewing or validating certain tests that had been used by the company prior to your coming to Detroit Edison. A. Yes.

Q. Do you know when psychological tests, so-called, or perhaps more correctly the standardized aptitude tests were first utilized by Detroit Edison and under what circumstances? A. Well, the very first one that I could find appeared about the year I was born, 1924. It was a set of tests which were developed and validated for a clerical operation in what was then our research laboratory. It was done by an engineer or scientist named Cope. And I might comment that that validation study, although not done by a psychologist, would stand up under professional scrutiny today.

Q. And thereafter did you determine or do you know when the standardized aptitude tests were first used for

the selection process for the instrument men? A. Yes. That would be somewhere around 1958. The first major [115] use of these aptitude tests appeared in 1928-29 when a set of tests was validated on the substation operator job by a Dr. Morris Viteles.

Between then and the beginning of World War II, some effort had been directed at this kind of thing to attempt to find validated measures of predicting performance on jobs but not a great amount.

Following World War II, because, I think, the company had determined that these were useful valuable devices, Dr. Worbois was hired just after World War II with the idea that we would have a more broadly based and intensive effort at the development of these for more jobs in the company than had been true up to that point. We had had in the years prior to World War II various consulting psychologists who had done work for the company: Dr. Ford from the University of Michigan, Dr. Viteles and others.

Q. Then I take it when Dr. Worbois was hired, a department or internal group of industrial psychologists was developed by the company? A. Yes.

Q. And you were part of that group? A. I came later, but it was developed around 1947. Dr. Worbois was in it for awhile. He was the head of it. I think there were one or two others. And by the time I had arrived on [116] the scene in 1951, there were at that time four people in the group.

Q. So in 1951 there was this group of four people, you came on the scene, and then approximately seven years later, in 1958, a battery of tests was first utilized by the company in connection with the instrument man job? Is that chronologically basically right? A. A validated test battery was used at that time, that's right.

Q. Before moving into some more specific considerations, I would like you to take some time, if you will, and

generally describe for us what we mean by validated. What does that term mean and what do you do to validate a test? What are you seeking to accomplish through a validation? How do you go about it? A. Well, the procedures are fairly generally accepted in the profession. The first thing that you do is to consult an analysis of the job itself. What is it that people do on the job? What sort of demands are made on the people by the job? What sort of tasks are they required to do and to what degree of effectiveness, and if there are time limits, how fast do they have to do them and all that sort of thing. You get a very detailed description of what is done in the job.

[117] Having that information, you then attempt to get some ideas about those kinds of aptitudes that might in fact underlie that performance. Having that captured, having a set of aptitudes that appears as though it might be underlying the job, you then select a set of standardized measures that might be used to evaluate the presence of those aptitudes in the job.

You do a second thing concurrently with this, and that is you develop a reliable measure of performance on the job so that you can in fact evaluate that a given individual performing the work is performing that work at a particular level: an acceptable level, not acceptable level, a very highly proficient level, whatever is a reasonable and logical way to separate out the incumbents on the job.

When you have these two things, a tentative test battery and the criterion, which is the evaluation of performance, you then ask a number of incumbents in the job to take the tests and you have the evaluation of their performance as well.

The sets of measures are then subject to rather rigorous statistical procedures, mathematical procedures which seek to determine whether there is in fact a relationship be-

tween any of the performances on any of the [118] tests and the performance on the job.

The procedure essentially in and of itself indicates whether or not a test is related, correlational procedures or whatever you like. If indeed you find that some tests are reliably related to the performance measures, these are then selected out of the tentative battery of tests and further analysis is given to how should they be weighted. Should you give them simple unitary weights and just add them all up, or are some of them stronger predictors of the performance on the job or what? And this then leads you, again on a mathematical basis, to what is commonly referred to as a battery score, which is a weighted sum of the earlier raw measures, if you will.

You then apply the tests to predict some evaluations of performance which were not originally used to set up the weights.

So it is a two-step process. The weights are established on one group of people and then an attempt to predict the performance of a second group of people, using those weighted scores to determine whether or not the weights are actually valid and reliable.

At this point we can then say to the management or whomever it is that commissioned the study that we either have a useful predictor of performance on the job or we [119] do not.

Q. Now, as to whether or not a particular battery of tests is or is not a useful predictor, how do you state that usefulness? In terms of what? Is it a percentage? A coefficient? A particular mathematical term? How do you equate predictability in terms of numbers? A. Well, there is a mathematical number, if you will, or parameter which is referred to as a validity coefficient, and if that validity coefficient is sufficiently high, you may then say that the test is useful.

Now "high" is a sort of relative term in that it depends upon the importance of the prediction that you are going to make, the nature of the work that you are going to predict it in, the criticalness of it to the client. It depends upon the numbers of people that might be applying for the job at any given moment and a number of other things. It is a rather complex judgment rather than being a simple X percent—if it is X percent, it's good; if it is not X percent, it's not good. It is not that simple.

Q. Assuming hypothetically then you run your validation studies, you come up with this coefficient or indicator of predictability for the test and it is sufficient to meet whatever standards may be involved. Am I correct that you then at that point have a test that would be utilized by the client [120] or by the company for the particular use it was intended? A. Yes.

Q. Now, going back again, if we might, to your initial contact with these types of procedures, were you involved initially at all in determining what jobs within the company should or should not be subjected to aptitude tests? And if so, what criteria were originally established? A. Upon being, I guess, considered for being hired by the company, I was asked questions about why it was I wanted to job, as is done most of the time, and I was told by the then Director of Employment, Mr. Sullivan, that the company had two concerns in why they wanted this effort made, the first being that we should look to those jobs which have a critical bearing on the company's business first, and then equally at the same time those jobs in which there was a high or significant degree of personal hazard to the employees; that it is those kinds of jobs into which we should put our effort. Recognizing we couldn't take on all the jobs, we should begin to study those kinds of jobs first, and that has been what was going on prior to my joining the company as well.

Q. So subsequent to your joining the company, in the last 20 or 30 years then have test batteries been developed for various trades jobs within the company? [121] A. Yes.

Q. Do you know approximately how many? A. To the best of my knowledge, it would be approximately 20. That's give or take three or four.

MR. LEWIS: 20 what?

THE WITNESS: 20 different job classifications.

Q. (By Mr. Houghton) And the test batteries for these job classifications involve what types of tests? Are we talking about skill tests, aptitude tests, personality tests? A. In the main we are talking about aptitude tests, standardized aptitude tests, as distinguished from achievement tests or proficiency tests.

Q. Explain that distinction for us, please. A. A proficiency test is designed to measure your present level of skill in some areas; present level of skill in mathematics, present level of skill in music, present level of skill in whatever area you wish to talk.

An aptitude test looks, on the other hand, at the capacities that the employee has for developing skills. It does not look at the current level of skills that he has.

THE ARBITRATOR: May I interrupt for just a minute, please?

When you use the term "standardized test," are you speaking of a test which you would buy from a psychological [122] testing corporation or one which you have developed in the company and call a standardized test?

THE WITNESS: It could be either, sir.

THE ARBITRATOR: It could be either?

THE WITNESS: Yes. The process of standardization, however, in either case, whether we bought it from outside or developed it inside, would follow the procedures that the American Psychological Association recommends to qualify for that.

THE ARBITRATOR: But the term "standardized" is often referred to tests which are purchased; isn't that correct?

THE WITNESS: Some folks do refer to it that way. I'm speaking about as a standardized test those kinds of tests which have had the processes of determining item validity, reliability and that sort of thing and meet the American Psychological Association's criteria for such.

MR. LEWIS: While the Arbitrator interrupted here, you said test batteries have been developed for 20 jobs?

THE WITNESS: 20 different, if you wish, job areas.

MR. LEWIS: 20 job areas?

THE WITNESS: Yes, like power plant operations, instrument man, lineman.

MR. LEWIS: Did you understand that, sir?

[123] THE ARBITRATOR: Yes, I did.

MR. LEWIS: Job areas.

THE ARBITRATOR: He said job classifications previously.

MR. LEWIS: Is it job classifications or areas? That's a big difference, isn't it?

MR. HOUGHTON: Why don't you save some of this for cross if you are concerned about it?

MR. LEWIS: I'm trying to understand it so I can cross examine.

MR. HOUGHTON: Is it classifications or areas?

THE WITNESS: Classifications, I suggest.

Q. (By Mr. Houghton) Turning to this point of standardizing a test—and I will use the term standardizing a test as opposed to a standardized test—you mentioned the American Psychological Association and certain recommended standards. I will ask you first of all have the aptitude tests that are used by the Edison Company been

equated to those recommended standards and standardized in accordance with those standards? A. Yes.

Q. Is that true of the battery of tests involved in this particular case? A. Yes.

[124] Q. Tell us if you will what those standards are, what they mean and how we end up with a so-called standardized test. A. Do you wish me to go through the process of how that is done, or what shall I—

Q. First of all you might identify the criteria that are used as standards. In other words, you stated the tests have to have reliability. A. Yes.

Q. I assume there are some other standards. What are they and what do you mean by each of those standards, first of all? A. Well, not only do you have reliability, but there has to be some research demonstration of that reliability in the manual that has been prepared.

The scoring system for the test has to be explicit, demonstrated. The method for the test administration must be explicit and demonstrated. Those are the main kinds of things.

Q. So there are three basic standardized criteria that are used. Let's go back to the first one, reliability. What is reliability and how do you measure that? A. Reliability is very simply the degree to which a test given to an individual produces the same score on multiple takings of the test. If a person takes the test more than [125] once, if it is a reliable test it produces essentially the same score on other occasions, all other things being equal.

There are two ways to test this, and one is to actually give the test twice with an interval in between. The other is to use a procedure in which you give what amounts to a double-length test and then split it in half randomly and test one half against the other, and if a test is reliable, the score achieved on one half will in fact be the same level as the score achieved on the second half.

Q. Let's use an example if we can and let's speak in terms of the instrument man battery in this case which you

told us are aptitude tests and not skill tests. Am I correct then if I were applying, myself, for the instrument man job and I took those tests tomorrow and I passed them and I went into the job; four years later, after working as an instrument man, I went back and took that same test again, my score, if it were a reliable test, would be the same? A. Yes.

Q. And why is that? A. Because again we are testing aptitude rather than skill. What would develop hopefully while you were on the job is that you would be able to enhance your skills. You would not likely alter your aptitudes for the development of those [126] skills.

Q. And I presume then when you are seeking to determine the reliability of a particular battery of tests, there are various statistical measures that are used in order to determine that reliability? A. Yes.

Q. One of the other two factors you stated in standardizing tests has to do with a scoring procedure. I believe you said there has to be a standardized clear-cut type scoring procedure. A. Yes.

Q. What do you mean by that? A. Well, obviously if you did not have a specific procedure by which the tests were scored and different scores used in different procedures, you would then obviate the reliability of a test. So one of the criteria of a properly developed test is that the scoring procedure is explicitly stated, and the test is only reliable, only useful insofar as those procedures are indeed used.

So if you use a scoring key or however you do it, whatever scoring formula is used, that must be used religiously for the test.

Q. And the third criterion for standardization you mentioned was what? [127] A. I'm not sure of the order I put them in.

Q. We have talked so far about reliability and scoring and there was a third area. A. The norm system, a manual full of norms.

Q. And what do you mean by them? A. This displays what kind of groups took the test so that a score achieved by a given individual becomes meaningful, and that also must be available in order to meet the criteria of the Association.

Q. Now let's assume that we have a so-called test that has been standardized, meets all of these basic criteria and these criteria have been mathematically demonstrated and you go about giving that test, and assume for example we are talking about a mechanical aptitude test. If that test is validated at a company up in Minnesota for a particular job, can that validation and that test be used by Detroit Edison Company for instrument man or is there a further validation that is needed? A. The latter is the case.

Q. Why is that? A. Because many times that company up in Minnesota may refer to a set of jobs as covering those of instrument man or whatever and those job tasks may not be the same as those that exist in The Detroit Edison Company.

[128] There may be a very significant difference between what is called instrument man in Company A and what is called instrument man in Company B and it is critical as to whether or no you are predicting against the job tasks, so that while in a research of this nature what you would do is to look around at who else has used this test to predict this sort of thing, you just simply do not then put it into effect in this company. You do conduct a research to demonstrate that it has validity here in this context.

Q. So if one were to walk into a store which sold psychological tests and there were a series of aptitude tests and you bought those off the shelf, before you could use them in a particular job situation in a particular company, you are saying it would be necessary to have a validation of the test with respect to that job? A. That is correct.

Q. Let's go forward and I will ask you to tell us what steps were taken in around 1958 when it was determined by

someone that standardized aptitude tests would be utilized for the instrument man job. What was done at that point by the company and how did you go about validating or selecting tests that would be used? A. I think, if I may, it is perhaps useful to go back a bit beyond 1958, earlier.

[129] Surely. A. In about 1952 I began to do this job with respect to the validation or determination of whether or not a valid set of tests could be produced for power plant operators and as a part of that job, of the whole piece of research, we, of course, looked at where do we get people into the operating groups? What do they do from the time they start until the time they leave operating? And what sorts of other jobs are related in some way to that?

One of the things that we noted was that one of the avenues out of the operating group was the instrument group and also the plant service group or maintenance group at that time, and also the movement from operating to the instrument group was based essentially on a seniority kind of a consideration.

We were asked at that time to take a look at whether or not the instrument job and the operating job in fact lay on the same ladder, if you will. Are they in a normal progression, one from the other, or do we have more than one ladder? We did some evaluation and looked at that and the evidence seemed to indicate to us that there was a separate ladder for the instrument group, and that is that the job in fact made different kinds of demands on the [129] incumbents than does the operating job and that therefore it was not a good procedure, in our judgment, without some screening to have people moving across to the other job.

At that point the then Production Department asked us to proceed with the development of a set of tests which might be used, if it worked out that way, to predict success in the instrument job. So we did then again an analysis of the kinds of things that instrument people do. What sorts of demands does the job make on them physically, emo-

tionally, intellectually, and attempted to secure a set of tests which might be predictive.

We also looked in other parts of the industrial scene in the United States as to what had other people done, other psychologists, where there was a job which had similar duties, similar demands; other parts of industry: process control industry, petroleum industry, drug industry and so on where they had process control instrumentation and people who were maintaining and troubleshooting on them.

The upshot of all of that looking was that there were about four tests that looked as though they might have some possibility of being predictive within the job in The Detroit Edison Company. Out of those four, three were picked to be put into a validation study. We did that approximately '56 or '57. We had incumbent instrument men take the test.

[131] Let's stop just a second here so we are clear now. At that point you through your inquiry narrowed the scope down to four tests. Were these standardized type tests that were available? A. Yes. I said we picked four. The fourth test was not used. We had at that time some question about the adequacy of its standardization. That is why we didn't use it.

Q. What were the names of the three tests that were used, if they have a name? A. The first was called the Wonderlic Personnel Test. The second is the Minnesota Paper Form Board. The last is the Engineering and Physical Science Aptitude Test.

Q. Is the last test sometimes known as EPSAT? A. Yes.

Q. Now, these three tests, just so we are clear on where they came from, are these tests that are sold by psychological testing outfits or groups to professionals? A. Yes.

Q. And once you receive this type of test, then, I take it, your job encompasses determining whether or not that test has validity with respect to the particular job you are concerned with? A. That is correct.

Q. Back in 1956 to 1958, when you narrowed it down to these [132] three tests you have just identified, what did you do at that point in terms of then determining whether those three standard tests had any validity for the instrument man job? A. We asked incumbent instrument men to take the tests on an experimental basis. There were not a great number of them at the time who were available to do this and upon whom we could get some indication of his ability to perform all the tasks that were required on the job, and as a result of that we produced what we referred to at the time as the tentative instrument man's test battery, and we developed this three-tier test recommendation, if you will, or test evaluation because we didn't think that on the basis of the size of the sample we had that we were able to split it any finer than that. Subsequently a revalidation of the test was made with more precise results and with more experience on larger numbers.

Q. So after your initial tentative test battery was selected and validated back in '58, you then used this three-test battery for several years? A. Yes.

Q. And that was utilized from 1958 to approximately what? A. I think the revalidation was done during the period '69-70 or something like that. You must realize I was not in the group at that time.

[133] Q. Mr. Roskind was involved with that? A. Yes.

Q. Now, am I also correct, jumping ahead for a moment, that the test battery that was involved in the instant case used only two of those three tests you have just described? A. From previous testimony, yes. I have no direct knowledge of that point.

Q. Let's back up for a moment, if we might. I would like to go a little bit into the two tests that you have talked about, the EPSAT test and the Minnesota Paper Form Board test, if you will. How did that test ever get a name like that? A. Well, in the earliest development of this kind of thing, the test is designed to and does measure that factor of intellectual capability called visualization. In the earliest days of attempts to measure this factor there was

actually a board, a piece of wood which had shapes cut out of it and the shapes were different complexity and size, and the person who took the test had a stack of shapes and was to place the shapes properly in the holes in the board. I don't recall the year. But this type of a test is cumbersome to administer. It has to be done on an individual basis, and Dr. Rensis Likert and Dr. William Quasha attempted to determine whether or no they could measure the same kind of a factor using paper-and-pencil tests which might then be [134] administered to groups of people rather than individuals, and they were successful in that effort. The correlation between the paper form of the test and the board form of the test were very high, and the paper form of the test was more reliable than the board form of the test, so the paper form board then replaced in the psychologist's bag of tricks the board form.

Q. I want to go into that particular test with you in some detail in just a minute, but initially I want to ask you a few questions regarding the test itself and whether ethically you are permitted to disclose that test to people, and if you as an independent psychologist were asked to analyze that test and determine its validity whether you, for example, would need to actually have that test in your hands.

Breaking those inquiries down into questions, first of all, is it necessary for you, in order to give a professional opinion as to the validity and predictability of that test, to actually have a copy of the test? A. No.

Q. Why not? A. If there is an adequate manual for the test, the manual itself, which displays the research, the nature of the research effort and the data, is sufficient. In fact, it would be very difficult on the basis of looking at a test to [135] make any reasonable judgments about what it measured, whether it measured it well or not. It might be very misleading.

Q. Are there such manuals available for each of these two tests, the form board test and the EPSAT test? A. Yes. They are available from the publisher of the test and there is also a considerable amount of research evidence extant in the literature about the test itself and how it has been used, validity studies, reliability studies, et cetera, et cetera. I think that the number of researches on that particular test, the form board, approaches numbers in the hundreds.

Q. This test then was developed, I assume, many years ago? A. Yes. I don't know the date but I assume it is 20 years old or better. It was around when I was a student.

Q. Now, if one then has these manuals and this research and the appropriate knowledge, he can then set about determining the validity of that test with respect to a particular job situation, having never seen the test itself? A. Yes. He can determine how valid the test has appeared in those researches where it has been used. You can't tell about its validity for a particular job until you have done the research on that job.

Q. Now, in addition to the information that you have talked about, the manuals and the research, is it also permissible [136] or possible to distribute samples indicating the forms or type of questions that are involved on psychological tests such as the form board test? A. Yes, it is. It is unethical to distribute copies of the test. That is clearly stated in the ethical standard for psychologists. You just don't. In fact, in courses where you are teaching students about testing, it is not even ethical in that situation to use the exact forms of the tests which are used in practice.

But there have been several different tests, if you will, which are used for the purpose of training which contain the same kinds of items as exist in the actual test itself, and these are used in training psychologists, business administration majors and others as to what is the content

of these tests, what form do they take, what kinds of questions are asked, what sort of problems are set before the person who is taking the test. There are those kind of things available. There is one particularly that I have used myself—I think copies are in the company someplace—called the multi-aptitude test. It is really not a test in the sense that you use it for assessment or measurement. It is used to train people to appreciate what is involved in those kinds of tests.

Q. That type of information, that particular reference would [137] be available to the general public? A. Yes, it is.

Q. And the manuals would also? A. The manuals for the test can be purchased, and of course the research is in the public domain, in the libraries.

Q. Looking first of all at this Minnesota Paper Form Board test, a few specifics: How long is the test in terms of time allowed to take it and number of responses that are sought? A. I think it is 25 minutes. The actual timing now escapes me. You realize I've been out of that specific business since '69 or '70, so that the time escapes me, but I think it's around 20, 25 minutes.

Q. Is that whole test basically one section or are there different sections within the test? A. It is one basic section, one general type of item, if you will, all set before the test taker, the same general kind of a problem, but it increases in complexity as one goes from the first item on the test to the last.

Q. What is that test used for? I take it this same test is used all through the country in various situations, this form board test. What is it supposed to predict or what do you use them for? A. It is designed to predict the ability to visualize in [138] three-dimensional space, both static and dynamic, what is called space perception. It is one of the factors that we have determined or one component of

the intellect, as one researcher likes to call it, as one of the key abilities involved in work where you are working with mechanical or conceptual systems which interrelate to one another either in space or in time, so that the instrument job, the operating job in the power plants, the lineman's job in the company, sheet metal workers, architects, design engineers, automotive mechanics—various researchers have shown that this kind of a test, the ability to visualize in three dimensions without actually taking the parts in your hands—what I mean by visualization—is a key item.

Q. Does this test attempt to measure those types of abilities largely independent of academic intelligence? A. Yes.

Q. Or experience? A. Yes.

Q. In other words, if we were to give that test to a graduate engineer and a musician, each of whom were trying to determine whether or not they could become good instrument men, it would be a valid type test for those two diverse interests or groups? A. Yes. You might in fact observe a musician who scored higher [139] on the test than did the engineer.

Q. If you perhaps would go to the board, I would like you to put on the board just a brief example of the type of question that you find on this form board test. You said they are all basically the same. What is the test applicant asked to do? A. (At the blackboard) The basic problem that the applicant has is he's given a form. I'm not much of an artist, as you will see. This is supposed to fit into this one and make a square, gentlemen.

He is then given a set of pictures, I believe five in number, and he is asked the question: Pick out of these five that picture which shows how these parts would look when fitted together.

The problem requires visualizing how these parts might fit together. Sometimes the parts have to be rotated, turned over, turned over in both aspects of the plane in order to decide which one is the right answer. And they

proceed from such simple questions as that to some that are quite complex with many more than two parts.

Q. Let's assume that someone takes that test and he is able to solve a great number of problems so that he scores well on the test. How on earth do you then go about determining whether or not his success on that test had anything to do [140] with whether or not he has the ability to make a good instrument man? A. Well, I guess the answer to that lies in my earlier response to the question about how you validate a test.

You look first at the demands that the job makes on the individual. What sorts of things are involved in the work that he does? And if indeed, as in the case of the sheet metal man, he is actually involved in creating forms, bending metal to produce a particular form, one could make a reasonable judgment that that kind of ability is measured.

Similarly, in the instrument man's area, he in fact in troubleshooting control systems must in fact visualize in his mind, if you will, the interrelationship of various parts of that system and/or various signals that are going about in that system from place to place, these signals being pneumatic signals, hydraulic signals, electronic signals and all that sort of thing, none of which he can actually capture with his hands but he visualizes what is happening, if you will, in the system, and this ability to visualize is measured by this kind of a test.

Q. I believe you told us earlier this particular test is a little unusual in that it has so many validation studies. Am I correct this test has been used by many companies and [141] many different employment situations through the years? A. Many companies, many universities, military organizations, many, many, many different kinds of situations.

Q. This is not a test that the Edison Company designed or it is not peculiar to our company then? A. It is not. It is commercially available. We did not design it. I wish I had.

Q. What about the reliability of this test? Is that significant? A. It is very high. It runs in the .89 to .95 level.

Q. That means what? If you have high reliability, that means what? A. That it measures consistently from one taking of the test to a second taking of the test on a subsequent occasion.

MR. LEWIS: Did you mention some figures a moment ago, .85 or .90?

THE WITNESS: Yes. I said in the neighborhood of .89—

MR. LEWIS: What does that mean to me, .80 or .90?

THE WITNESS: I can go into this if you wish.

MR. HOUGHTON: Can you show him on the board conveniently what that means?

MR. LEWIS: Can you tell me?

THE WITNESS: I can better show you on the [142] board instead of waving my hand.

If we draw a graph and we say that this axis of the graph represents performance on the test taken the first time, if you will, and there are various scores that you can achieve from low to high or few correct, many correct. This is the first time you take the test.

We will put on this axis the second time you take the test, and again we have low, high, and all the scores in between.

Now, if the reliability of the test were perfect—in other words, the same identical score you got on the first test, you would get on the second—for those people who got low scores you would have a score here, and they would

fall on a direct straight line from the lower left corner to the upper right, a one to one relationship between the two tests.

Unfortunately, in psychological measurement we don't find that kind of situation. We don't find direct one-to-one kinds of things. So they tend to be, in the case of this test, a few items which lie—a few instances where an individual took the test the first time and second time which do not lie on the line. They lie rather in an envelope like so.

Now, that envelope—when we are directly on the line, you would have a number that is called 1.00 or a correlation of 1.00.

[143] As the points begin to move away from the line, this then goes in the direction of zero, and what would be shown in that case is that these plots would be all over the place. They would not have any pattern to them; randomness.

In the case of this test, they tend to lie very close to the line in terms of—I don't know the exact numbers, but I'm sure that it is closer to .90 than it is to .80, so that we are talking about something that is a very close envelope, that the test is highly reliable.

Q. (By Mr. Houghton) Taking a reliability of, say, .85 to .92, how does that compare with the reliability of other types of aptitude tests used in the psychological testing field? Is that high or low with respect to other tests? A. Some tests are used which have reliabilities of the order of .70 or .75. They simply haven't figured out how to make them more reliable than that yet.

It is desirable to have as high reliability of measurement as you can get, because without reliability it is difficult to achieve validity. The real problem is validity.

Q. And this test does in fact have high reliability?

A. It is generally accepted among professionals in this field as having among the highest reliability of tests of this type that exist.

[144] (Short recess)

Q. (By Mr. Houghton) Mr. Kanous, we had finished our discussion of the Minnesota Paper Form Board test, and I would like to turn now to the—

THE ARBITRATOR: One question. He was discussing reliability, was he not?

MR. HOUGHTON: Yes.

THE ARBITRATOR: What about the validity of this? What is the correlation coefficient there?

THE WITNESS: It is about, to the best of my recollection, the order of .70, .71, .72. I'm not sure.

Q. (By Mr. Houghton) What does that mean? How does that compare to the validity of other tests? A. That's very high. It is sufficiently high to have caused us working with it to wonder whether or not some mathematical error in computation had not been made, because in industrial practice one doesn't ordinarily see correlation coefficient, validity coefficient at that high a level.

The data was reanalyzed to make sure there were no arithmetic errors. That's the total battery, incidentally.

Q. The total battery validity is .72? A. Yes.

Q. The second test you used in the battery, this Engineering and Physical Science Aptitude Test, which I will refer to as [145] EPSAT, what is that test and how is it set up in terms of divisions or parts? A. The test was originally designed for predicting success in various disciplines which have to do with the engineering and physical science area. An instrument man is one job that falls into that kind of a category. It is a test which is made up of a

number of different parts. There are parts which have to do with mathematics, arithmetic, if you will, arithmetic reasoning, mechanical comprehension, formulation, physical science vocabulary, physical science comprehension.

Each of these parts tests a specific area of interest that is related and has been shown by research to be related to successful accomplishment in those areas I referred to earlier.

Q. And again here we are measuring abilities as opposed to skills? A. Yes, although this particular test has some parts in which the part measures ability by way of assessing current level of skill, physical science comprehension being one of those.

Q. Let's look at each of these six areas that the test is divided into and tell us, if you will, generally how those parts relate to the instrument man job, for example.

The first part we will take is the mathematics section of the test. What is attempted to be measured in [146] that section? A. His aptitude for and facility with mathematics as we commonly know it: addition, subtraction, multiplication, division, fractions, ratios and proportions, a little bit of algebra and a little bit of geometry.

Q. The second area is formulation. What does that mean and what are you attempting to measure there? A. This test is designed to attempt to determine the facility with which a person can take what used to be called in the schools word problems and express them in a formula which best expresses a word problem that he sees.

Q. Looking at these two, I would like just for a moment to return to that math section so we are clear on that. For this job, as indicated in the exhibit earlier, there is a requirement that you have satisfactory credits for two years of high school math. Is a person who has successfully completed two years of high school math and under-

stands those types of basic mathematical principles equipped to satisfactorily handle the mathematics section of this test? A. Not necessarily.

Q. And why not? A. Well, the test actually takes a look at a steeper cut than [147] one would expect to have seen in a typical high school course. We are really after the guy's facility with mathematics at a higher level or understanding of mathematics at a higher level than is typical of a high school course.

Secondly, the statement in the posting does not talk about the type of math nor the high school from which it was obtained. Many of us know today and in the past that the course called high school math maybe required different performances in different high schools, or the same high school may have several courses all called high school math which have different requirements, one for the college-bound student, another for another kind of student and one—I hesitate to say, but is just designed to get the kid a credit in math.

Q. Aside from whatever so-called credit he may have, you measure his understanding of math through this section of the test? A. Yes. That's more reliable than what you can observe on a high school transcript.

Q. You were starting to get into formulation. How are those problems set up for the test applicant to solve? A. I'm trying to recall the items. I think Mr. Roskind might speak more specifically of that, but it seems to me if my memory serves that they are set up in such a way that a word [148] problem is given and then there are either four or five formulas, one of which accurately represents that word problem, and the task is for the person taking the test to properly identify which one of those "formulas" does fairly represent that.

These are not formulas that one might find in physics or chemistry or something like that. You might even call them quasi-formulas.

Q. In the next section, the physical science comprehension section, what types of problems do we find and what are we measuring? A. We are measuring understanding of physical principles. For example, one might be shown two cylinders, one of which is black and one of which is not colored, and the question might ask: When exposed to the sun for a period of time, which cylinder, A or B, will be hotter. And the physical science concepts of reflectivity, of retention of heat, et cetera, must be applied in order to solve that problem. Each one relates to a different physical science principle and its application in a specific case.

Q. This would also include the displacement type problems where objects are placed in water and so forth? A. Yes. I think there is a specific problem on the test which deals with placing a solid geometric figure into a liquid or [149] two of those and asking which one of those will displace more of the fluid. That has almost a direct tie to the instrument man's job in which he does work with the devices which operate on the buoyancy displacement principle.

Q. In speaking of this direct tie, I suppose there are certain questions and answers that the layman might be able to identify and say in his own mind, "Gee, I see a relationship between the answer to that question and the job," and I suppose there are other types of questions where that is not at all evident. A. Yes.

Q. How do you distinguish between those two types? In other words, if a particular question has that type of relationship on its face, is there a term you apply to that? A. Yes. That is referred to as face validity. A test which looks to the uninitiated as though it measures what its title says is said to have face validity. It looks like it measures what it's supposed to measure. But face validity is not a requirement of predictive validity.

Q. When a test has face validity, does that necessarily mean it is more or less valid than one that doesn't? A. Absolutely not.

Q. What is the value of face validity? A. In general it makes people who look at the test happier if [150] they see face validity. They feel better about it. That is about the extent of it.

Sometimes if you develop a test, in the interest of keeping the person who takes it motivated to pursue the test, you might at the early stages, the first few items, introduce face-valid items. That has been done in various kinds of test constructions, put face-valid items in first and the person is then more willing to go on and finish the test.

Q. So am I correct then that whether a particular item or series of items have face validity or not does not measure in any way the validity of the test itself? A. That is correct.

Q. And for a layman to look at a test then that would ask whether a man would rather plough a field or build a barn, if he might not understand what was attempting to be measured there, that is inconsequential in terms of whether the test has validity or not? A. That is correct. In fact, you may for certain kinds of purposes in testing present items in such a way that they do not have face validity. There is a test like the Minnesota Paper Form Board which tests visualization. It uses forms which look like pipes, valves and that is to combine parts together [151] to produce a given shape. But since it looks like pipes and valves, you dare not give that to a pipefitter, a plumber or anybody of that sort because his experience with what valves really ought to look like leads him astray into making inadvertent errors, so that you have to be very careful about when face validity is allowed in the test. It may do the person who is taking the test if he has experience in the area a serious disservice.

Q. We discussed the mathematics, formulation, and physical science comprehension section. The next one is the arithmetic reasoning. What do we attempt to measure there and how is that different than the mathematics section? A.

This is a measure of ability to reason in a deductive way, and there are in general two ways that this can be tested.

One is by presenting questions or problems which are stated in such a way that the symbols used are numerical, so it is called arithmetic reasoning.

It is also possible to get the same measure of reasoning using verbal items. That is referred to as verbal reasoning. What you are really after, however, is not the ability to manipulate the mathematics, but the ability to reason especially in a deductive sense.

Q. How is the ability to reason in a deductive sense important to the instrument man? [152] A. My observation of the job is that that is one of the key issues in the job, to be able to look at a set of symptoms, properly perceiving those symptoms to deduce what is causing this instrument or this system to perform in the way it is, and sometimes the parameters, if you will, the measurements, are many, combining in very complicated ways. So the deduction is not simple nor easy.

Q. The next section is verbal comprehension. What is measured there and why? A. The verbal comprehension test measures essentially again in a physical science context the ability to use language effectively.

Q. And the types of questions that would be asked in that section are along what line? A. I'm afraid I'd have to refresh my memory on exactly what the test items look like in that portion of the test. I'm not certain if they are vocabulary types of items using physical science vocabulary.

Q. And the last section, mechanical comprehension? A. This is very similar to physical science comprehension, only here we are concerned about the ability to apply mechanical principles of levers, principles of gears, principles of centers of gravity, those kinds of things which tend to be mechanical kinds of things.

[153] Q. How is that ability relevant to the instrument man job? A. Many tasks that the instrument man has to perform, especially when he starts getting into the insides

of instruments, have to do with leverages, with springs and gears, with complex linkages, all designed to convert a signal from the form you find it into some useful form later, and that has been for many years the bread and butter of instrument work.

Q. These six sections then comprise the total test? A. That is correct.

Q. And how is this test scored? A. As a whole only. A total score is derived over all the parts. The parts are not scored or not interpreted separately as individual parts. The manual and the recommendation of the authors and other researchers indicate that the individual parts are not of sufficient length to be reliable to use predictively all by themselves. It is the combination and the complexity of the entire set that is used.

Q. I take it then each one of these sections isn't a two-hour examination or anything like that? A. No. The whole test is perhaps an hour. Again I must indicate that I cannot give you specific time or scoring formulas for these tests. You realize that over the years I worked with [154] a very great number of them, and if those data are specifically required, I can get them.

Q. No, I understand that. If some question does come up as to exactly how long it is and so forth, you can get that information for us? A. Yes, that can be obtained.

Q. Now, what about this particular test? Does it have a high or low test validity? A. In this particular instance it has a quite high validity, contributes substantially to the predictive effectiveness of the test battery, and it also is not a new test; it's been around for a number of years, I think going back prior to World War II and during World War II and has been used in many different contexts, predicting success in technical education, predicting success in technical training situations, predicting success in doing work wherein that technical training has occurred; also predicting success in those areas where men are successfully performing the work wherein they learned the job on

the job, but all of the work having to do with this business of it being embedded in the physical sciences.

Q. We have talked about the concept of validity and high and low validity. You may have stated this already but I want to make sure we understand. Can you give us a definition of [155] "validity"? A. I can do that if I may use the board.

Q. Certainly. A. (At the blackboard) The validity is the degree to which a test predicts what it is supposed to predict. If we take this same graph that I have drawn here, and instead of putting the first test over here, if we now put some measure of success on a job on that side of the test, this is success and this is the test score, and you make a comparison between test scores and performance on the job.

You again get individuals, one who perhaps is not successful on the job and his test score is low. We put a mark here.

Again, if it was a perfect relationship between the test and performance, we would see people falling right on the line going on up. That would be perfect positive predictive validity. Again, we don't typically observe that. We typically in industrial practice observe the scores scattering about the line in some fashion, and in the instance of this test battery, where formerly we were talking about reliabilities in the order of .80 and .90 of each test, we are here talking about validity of about .71, .72 positive.

Q. Now, in terms of reliability that we discussed earlier, [156] what is the reliability of the EPSAT test? Is that high or low? A. That's high, ranges someplace, I would suspect, between .75 and .85 or some numbers of that sort.

Q. These two tests then, do I understand, comprise the total battery of tests that are now used for the instrument man job? A. Yes, they do.

Q. Prior to this change that we will get into a little later in the testimony, you used these two tests and in addition

the Wonderlic Test? A. Yes, the Wonderlic Test.

Q. Now, while you are at the board, in response to a question Professor Jones had earlier you indicated the validity of the battery was approximately .72. A. Yes.

Q. What does that mean? Can you explain that to us? Does that mean 72 people out of a hundred are going to succeed on the job or what? A. No. I'm trying to figure out how best to put this.

Q. If some other figure is easier to work with, you may use it. I am just interested in the concept of what we mean by validity. A. The validity of the test tells you how accurately you can [157] predict the performance of a group of people knowing what their test scores are, and if I have a test where the validity coefficient is 1.00, then if I know the test score, I can perfectly accurately predict whatever it was I was trying to predict, and as I back down toward zero, my predictions become less and less accurate. The probability that I will successfully predict diminishes.

Q. The .71 then in —?—? of validity for this type of test is quite high, you said? A. It is indeed.

Q. Very high! A. Very high.

Q. Within the industrial psychological testing field, so to speak, what range of validities do we find for these types of tests? A. Useful validity from .30 to .60, very rarely one of the order of .70.

Q. When you say .30 to .60—— A. That would be .3 to .6. You very commonly find validities of .2 and that sort of thing. Those are really not useful. That means that you would not do much better than chance.

Q. I guess what I am getting at, so we understand this term, I suppose a layman might think if you said you had a .5 validity that this would be a flip-of-the-coin, random-type [158] 50 percent of the time right and 50 percent of the time wrong, and you are not telling us that. A. No, I'm not. That would be the condition which would exist if you had a validity coefficient of 0.00. That is chance. That is the coin-flipping situation.

Q. Thank you. Now, you told us that in the 1950s you became involved in a study of the instrument man job and the instrument man battery of tests and developing that battery of tests. What knowledge did you actually have or acquire with respect to the instrument man job? How did you know anything about the job and what were you looking at in terms of that job either as a static entity or changes or whatever? A. Well, as a part of the business of trying to learn to understand the jobs in the power plants, the operating jobs, the instrument jobs and the maintenance jobs, I spent, I would say, the best part of four years in the plants around the clock, on the day shift, afternoon, night shift—not all on the same day, of course. This was done on Monday and Tuesday of a week. I would be back in my office on Wednesday of that same week, and then back in the plants on Thursday and Friday, and I spent time with the operators, with instrument men, with maintenance people discussing with them: What are you doing? Why do you do that? What is difficult about this? How does it fit into the whole plant [159] here? All kinds of questions.

I was even on some occasions allowed by some of the fellows that I was working with to do some of these things. I packed valves under the direct supervision of the operator who was helping me out.

On a couple of occasions they asked me to determine whether some link fuses were in fact overheated. I declined that privilege since I didn't know enough about it to know whether I was safe in that situation or not.

I spent time in the instrument shop, spent time with the instrument men in the same vein. They were very cooperative with me, answered all the questions I had, and then I would come back and on the basis of the kind of observations I had made and the stories I had been told, the things that I could see, I made some estimates, some judgments about what sort of abilities do these men use in order to

perform these tasks, all the way from a simple replacement of a Bourdon tube gage on a gage board without doing anything to the gage itself except direct replacement all the way to five-hour work on a three-element drum level controller which in those days I think was one of the most complex pieces of equipment that we were looking at in the Marysville Plant, for example.

Incidentally, this was not only done in one [160] plant; I spent time in Marysville, Trenton Channel, Delray, Conners Creek, and then later on in the St. Clair Plant as that plant came within our purview.

At the point of becoming aware of what the guys do in this job and making contacts with them, with their supervisors, with the technical engineers in power plants and so on, I also became aware that there were some changes in technology that appeared imminent down the road; that we were in fact installing the new plant at St. Clair which was going to be a unit system plant; it was going to have the boiler and turbine controls in one room and the electrical controls someplace else. It began to look as though the trend in this area was not having a static situation. There were technological developments which looked as though down the road things were going to get more demanding for the instrument man.

As we went further down this road we could see that five years hence we were going to have Trenton Channel No. 9 Unit in which there was not only a new concept of operation, in the sense of operators working in a control room where they operate boiler, turbine and generator, plus coal handling system, hopefully; the situation was becoming more complex.

The question we had to ask ourselves was: [161] Does this imply a different kind of an instrument man five

years from now, 10 years from now, 15 years from now than those we have currently in the plant? And if we do, then we should look to a different way of selecting people perhaps and certainly a different way of training people. We may have some new training content that these men are going to have to get around.

It was my observation at the time that with respect to the nature of the work itself, the kinds of demands that the job made on the instrument guy, that in Marysville Plant, which is one of the oldest in the system, there were instrument systems applied to that place that were very complex, made great demands on the talent of the instrument man, and as we then looked at the other plants, St. Clair, River Rouge, Trenton Channel 9, St. Clair 7, Monroe 1, 2, 3 and 4, and even now looking at Enrico Fermi, it appears that what is happening is that in the job of instrument man the trend appears to be that we are giving him more and more instances in which he has to apply the highest level of ability than he used to have to apply in the "simpler" plants.

So you look at the development of the technology in the plants, if we say that this is time down here, back when we were looking at this job in the '50s we [162] were at this point and when we looked at the development of the technology, it was going like so, with a very significant change right there. That's when the company decided to go to electronic control systems rather than electropneumatic or straight pneumatic—that was true, I believe, at Trenton 9 the first time; that the cost and reliability trade-offs between pneumatic instrumentation and control equipment had now reached the point where it was economical to go electronic. That's Trenton Channel. Since then we've had St. Clair, Monroe and so on, and we are currently in the process of developing other plants.

If we looked at the job itself and the tasks that the men were performing at this time, we find that some of those job tasks, for example such things as three-element drum level control, that exists up here, and instrument men were indeed required to troubleshoot and maintain that kind of instrumentation.

There were, however, in those old plants fewer occurrences of tasks at that level of complexity. In the newer plants these occur more often and I would say significantly more often.

Q. You would rate them at the same level in the new plants, only with more frequent occurrences? [163] A. That is correct.

Q. What did all of that mean in terms of the selection process that you were attempting to work out? A. Another point, I think, needs to be made, and that is that every plant has relatively few instrument men. There are not very many of them in a plant or not very many of them in The Detroit Edison Company. That's one of the problems in validating tests with this kind of a job. And yet the job is a key one in the plant. It's extremely important to the plant's operation, both in staying in operation and operating efficiently when it is in operation.

So it looked to us that the old methods by which people were selected to move into that job really needed a more careful scrutiny. This was a key position, lots riding on it, and therefore anything that we could do to find a valid way of predicting subsequent success in that job would be very helpful.

I ran into a second thing which is perhaps not relevant to this procedure, but at the time of talking to these guys out there in the plants I found a number of them at about age 35 who would ask me the question, "Do you think I'm in the right kind of work? You're a psychologist. Do you think I'm in the right kind of work?" And it seemed to

me that if we could find some way to better predict [164] whether a man with these kinds of characteristics was indeed going into the right kind of work, we could obviate that kind of concern at a time in his life when he really ought not to be having to make those kinds of decisions. You ought not to have to be concerned at age 35 as to whether or not you have started off on the right kind of a career, especially when it is this kind of a career.

Q. Through this analysis in attempting to determine who will be successful or unsuccessful in the instrument man job, are you saying in effect then that you are seeking to find more people who can perform reliably and consistently at this higher level than you have had in the past? A. Greater numbers of them, yes. But in terms of the level of ability, that's not different. We are looking for greater numbers of people who can pull that off, but I don't think that we are looking for—some of the men who were performing that job back in Marysville Plant in the '50s would and do perform a very acceptable job in a plant like Monroe. They have that kind of talent. They have capitalized on that talent, taken advantage of opportunities to learn and are good instrument men.

Q. And I assume there are others that cannot? A. Yes. There are individuals who cannot perform the whole job satisfactorily. There are some parts of the job which [165] they may be able to perform, but performing the whole thing is not within their range of ability.

Q. And in determining abilities in this context in this case today, am I correct you are seeking to measure and find people that can perform the total job then? A. That's correct. If I may, in years past, the organization of the task of installing and maintaining instrumentation in a power plant was quite different than it is today.

In the past, for example, in the technical engineers group, we had a group of people who were called junior engineers and in training and that sort of thing in the plant. These were graduate engineers, many of them who

had specific training in instrumentation and control systems. We also had, as I mentioned earlier, fewer instances of these high-complexity kinds of situations. The way the job got done, as I observed it, was often that assignments were given to those men who could handle the job, differential assignments, although all the men were rated essentially at the same level. They are all instrument men. But certain instrument men would be given certain kinds of jobs. Other instrument men would get different kinds of jobs, less demanding kind of job, if you will.

Sometime during the latter '50s, after some studies done by the professional employment area, it was [166] indicated that the junior engineer position in such numbers was not really a desirable thing, that there wasn't a sufficient amount of challenge, that the men didn't develop fast enough, so that staff was reduced in size, which meant essentially that the burden of doing these kinds of things independently without calling on some guy for help of one sort or another, whether he be tech engineer or junior engineer, became more necessary for all instrument men.

Furthermore, it was the concept of the plants at that time that the man they had in mind when they said fully-qualified instrument man was a man who in the middle of the night could be called in because some control system was not functional, and then within the range of the test equipment he has available to him and the parts he has to replace it and the accessibility of those parts, to actually keep that system on the line or put it back essentially without assistance. A phone call, perhaps, but certainly not bringing in two men, one of them an engineer, and the other the instrument man.

Q. You worked with this program then through the development of the initial test battery that was utilized up until the changes that you have discussed? A. Yes.

Q. And you then went out of that position when? [167] A. About 1970. I didn't go out all of a sudden. I went on part-time assignment to a project group which then began to take my full time, and then finally I was given the position I currently have in which I am not involved in that any longer except by way of assisting departments to develop training programs for instrument people, and I had some input to the training programs currently used for these people in the Production Department.

Q. And in carrying on your work in 1970 up to date and in terms of revalidating these tests for the instrument men and so forth, Mr. Roskind has had his hand in that work? A. That is Mr. Roskind's responsibility, that is correct. I have not been responsible for that.

MR. HOUGHTON: That's all I have.

THE ARBITRATOR: Gentlemen, given the hour, I think we had better call it a day.

MR. LEWIS: Except I will take about three minutes to ask you to give serious consideration to my request to order those tests or subpoena them, if you will, because based on what Mr. Kanous just said, I'm more positive than ever that I need them now.

I haven't any idea how we could ever tell these six men why they didn't get a score or why they are "head and shoulders" below others who were accepted, the things he told us [168] here today.

MR. HOUGHTON: I would disagree with that completely.

Aside from that also, there is more testimony to come. Mr. Roskind will have some further development of tests. Some of the questions you still may have in your mind I think may hopefully be resolved after you hear him and after you have had a chance to cross examine both of these people.

MR. LEWIS: Let's just review. He said there was a section on verbal comprehension and vocabulary. I don't know what in the world that has to do with an instrument man's job. He said something about arithmetic reasoning, quite apart from mathematics, which was another section, and there was a word problem section. I'm sure we have to have those tests.

THE ARBITRATOR: Mr. Houghton, during the course of Mr. Kanous' testimony there was some indication that there are available sample tests that are not the exact test. I guess the question this brings up in my mind is would one of these kinds of tests meet the problem that we have before us?

MR. HOUGHTON: It might. I have one of them here. Before we break, let me introduce that and give a copy to Mr. Lewis. Portions of that sample test are found in these and others are not, and perhaps I will have Mr. Kanous identify which portions are relevant to this battery so that we know that before [169] we break up. Then you can have that overnight.

MR. LEIWS: If it helps, try it.

THE ARBITRATOR: That might be the answer to the problem here. If it is, that would be one way of resolving it.

MR. LEWIS: We haven't gotten into the scoring or anything like that.

THE ARBITRATOR: No, that is correct, but it would give you some indication, I assume, of the kinds of questions which are asked on the test.

(Company Exhibit 5 marked for identification)

MR. HOUGHTON: We will offer as Company Exhibit 5 a document entitled "The Multi-Aptitude Test, Form A."

MR. LEWIS: No objection.

Q. (By Mr. Houghton) Mr. Kanous, on Company Exhibit 5 which has been admitted, on the front page we see 10 parts in this sample. Will you identify for us which of those parts would be relevant to the instrument man test battery.

MR. LEWIS: Pardon me. You mean which were used in the particular case we have here?

MR. HOUGHTON: Which types of questions or types of ability sections were used.

Q. (By Mr. Houghton) For example, number 10 is the paper form [170] board test. A. Let me refresh my memory. Yes, test number 10 on page 23 does show the kinds of items which are used in the Minnesota Paper Form Board Test.

* * *

[171] Q. (By Mr. Houghton) Those are the types of questions, am I correct, that are used on the paper form board test? A. Yes.

Q. And they are asked to solve problem situations like those? A. Yes.

MR. LEWIS: Was it used in this particular case?

THE WITNESS: Yes. The paper form board test is one of the instrument man test battery.

MR. LEWIS: Okay. What else?

Q. (By Mr. Houghton) Looking at the other nine sections, which, if any, of those nine sections are reflected in the EPSAT test? A. Excuse me, Mr. Houghton, If I may pursue something that I don't want—

Q. In other words, question one, showing those precise forms; we are not saying that that was on the test.

MR. LEWIS: Oh, no. That's the type. I understand that.

[172] THE WITNESS: I wanted to make sure we didn't misunderstand.

MR. LEWIS: Oh, no. I understand. It's symbolic. That's the type.

THE WITNESS: This particular test was not used. Items of this type were used.

MR. LEWIS: It's symbolic of what was used.

THE WITNESS: Yes.

MR. LEWIS: Okay.

Q. (By Mr. Houghton) Starting with item number 1, vocabulary. A. Those are the types of items that are used in the EPSAT test. However, in the EPSAT, the terminology that is used are physical science terminology. The terms are those drawn from physical science. The form of the test item is the same.

MR. LEWIS: The words are different?

THE WITNESS: Yes.

MR. LEWIS: But the form is the same?

THE WITNESS: Yes.

Q. (By Mr. Houghton) The second section is general information. Is there a general information section on the EPSAT test? A. No.

MR. LEWIS: Not used.

BY MR. HOUGHTON:

[173] Q. Item 3, arithmetic. A. Yes, items of this form are used.

- Q. Number 4, number series. A. No.
- Q. Number 5, figure classification. A. No.
- Q. Number 6, mechanical comprehension. A. Yes.
- Q. Number 7, word recognition. A. No.
- Q. Number 8, scrambled letters. A. No.
- Q. And number 9, checking. A. No.

Q. So in summary then, we have examples of the types of questions and responses that are sought on the paper form board test in section 10? A. Yes.

Q. With respect to the EPSAT test, we have examples of the types of questions under the vocabulary portion, the arithmetic portion and the mechanical comprehension portion; is that correct? A. Yes.

MR. LEWIS: Three out of six?

[174] THE WITNESS: Yes.

MR. LEWIS: Just three of the tests making the battery out of six.

MR. HOUGHTON: Three of the six sections of the EPSAT test.

THE WITNESS: Yes.

MR. LEWIS: There are three that are not illustrated here?

THE WITNESS: That is correct.

MR. HOUGHTON: Whether or not we can obtain examples of the other three sections is something I will inquire about. We may be able to get something along that line also.

THE ARBITRATOR: I would like you to do so, please.

MR. LEWIS: Let me review it, please.

The Minnesota Paper Form Board Test is illustrated here.

THE ARBITRATOR: Right.

MR. LEWIS: The mathematics test is illustrated here; is that right?

THE ARBITRATOR: Yes, arithmetic.

MR. LEWIS: Which is it? We've got arithmetic reasoning and mathematics. We've got two tests in the battery of EPSAT. Which one is symbolic here?

[175] THE WITNESS: Math.

MR. LEWIS: Mathematics is shown. The arithmetic reasoning is not shown.

THE WITNESS: That is correct.

MR. LEWIS: Formulation, word problems?

THE WITNESS: It is not shown.

MR. LEWIS: Is not shown. Physical science comprehension?

THE WITNESS: Is not shown.

MR. LEWIS: Arithmetic reasoning is not shown, right?

THE WITNESS: Yes. I think that's what we said.

MR. LEWIS: Verbal comprehension?

THE WITNESS: Yes. That's vocabulary.

MR. LEWIS: That's the same as vocabulary?

THE WITNESS: Yes.

MR. LEWIS: And mechanical comprehension is shown, right?

THE WITNESS: Yes. It is part 6.

MR. LEWIS: That's what you call mechanical comprehension?

THE WITNESS: Yes.

MR. LEWIS: So we have illustrations of the [175a] Minnesota Paper Form Board Test and three of the six sections of the EPSAT Test.

THE WITNESS: Yes.

THE ARBITRATOR: Very well. We will adjourn until 9:30 tomorrow morning.

(Evening adjournment)

Respondent's Exhibit No. 8

* * *

[178] MR. HOUGHTON I would also propose as Company Exhibit 6 examples of various types of questions that are found on the formulation, physical science comprehension, and arithmetic reasoning sections of the EPSAT Test. I might add that with respect to these questions there is no such sample manual available as we utilized yesterday, so we did take sample questions that are actually used to acquaint the people taking the test with the test before they take it for the formulation and physical science comprehension sections, and we have [179] developed sample questions for the arithmetic reasoning section like those that are found on the test.

MR. LEWIS: Mr. Chairman, all I have here is one question from each of the sections of the test battery in proposed Company Exhibit 6, one question of each. Yesterday I thought we had a reasonably decent sample of the other parts of the battery in Company Exhibit 5, enough for me to get some kind of a judgment on. I can't get any judgment on a single question for the three parts of the test which are relative to Company Exhibit 6.

Let me understand this. Yesterday, in connection with Mr. Kanous' testimony, the company counsel gave us Company Exhibit 5 which had to do with vocabulary, arithmetic and mechanical comprehension, three of six parts of the EPSAT battery. I point out that there were three other parts for which we had no samples at all. Today management brings in one question from each of the other three parts.

On that ground I would reject it as totally incomplete. I mean it does nothing for me. I would have to persist in my request for a subpoena of the test both at this level and at the labor board level if this is all I'm going to get.

MR. HOUGHTON: In answer, that's all there are. You can ask either one of these men, Mr. Roskind or Mr. Kanous, [180] to go to the board and they would be glad to develop 10 or 15 in each area for you, or we can take the time to do that if that is what you want and that will be made available to you.

The record should reflect that we are indicating to Mr. Lewis that any number of questions of the type on the test will be made available from experts by examples on the board if that is what he desires. All that we had available were included on this document without going into the actual test itself.

MR. LEWIS: Mr. Chairman, my problem, as you well know, is 10 men were turned down for a job in the instrument shop at Monroe Plant. Six from outside were accepted. My task within the "head and shoulders" concept of the contract is to find out why the 10 in the plant, which is the first-level bidding, were not accepted as contrasted to six alien people from outside who were taken.

I've got to know how management considered those successful candidates "head and shoulders." I'm not going to be able to do it with just a single question on three of the test sections. I'm not going to be able to do it. If there were 40 questions in each of these sections, what good does it do me to see one of them? We haven't yet at all gotten to the cut-offs and the grading sections and all that sort of thing.

THE ARBITRATOR: Yes, I agree that we haven't gotten that far yet.

[181] I think to try to answer your questions, I agree with you that you do have a problem involved here in de-

termining how this testing procedure works. I guess I have some fear that even if we had the test before us we wouldn't know that.

But beyond that, in response to your direct request, it seems to me there are two methods of trying to get the information here. One is to the Labor Board. The second is the request of the Arbitrator. But I think you have perhaps exaggerated some of the subpoena power of the Arbitrator.

MR. LEWIS: I doubt it.

THE ARBITRATOR: This would be a question, I expect that the Court would have to answer if I made such a request. I think I do have the power under the Speilberg Doctrine to determine whether there has been bargaining in good faith, and of course the company could then appeal that decision to the Board also, or I suppose that the Board, given this particular request that you have before it, under the Collyer decision could defer to the Arbitrator, so that either way there is some possibility here.

But I guess I also have the fear, Mr. Lewis, in reflecting upon this question through heavy traffic last night, that if the test were brought and made a part of this record, the company would lose no matter what the decision.

[182] MR. LEWIS: I don't think so. They don't have to give the same test to the next group.

MR. HOUGHTON: That is, of course, completely incorrect. These tests involve years of research and careful study. You can't monkey with a test and start changing it or you lose all the validity of the test.

MR. LEWIS: If I understand it, looking at Company Exhibit 5, there's all kinds of variable choice or multiple

choice things here. Who said you can't vary multiple choice questions?

THE ARBITRATOR: No, I don't believe so, Mr. Lewis, based upon—

MR. LEWIS: Look at the vocabulary. It's a cross word puzzle; which word is relative to which other word? That's cross word puzzle stuff, in my opinion, if you do that. In other words, there's 15. Why can't you pick 15 other words? I don't understand it.

THE ARBITRATOR: Each question has to be item analyzed

MR. LEWIS: Professor?

THE ARBITRATOR: I say each question has to be item analyzed and validated against—

MR. LEWIS: But my question is this: Let's take vocabulary. This is really a cross word puzzle. 15 words [183] relate to 15 other words' meanings.

THE ARBITRATOR: But what I'm saying is that—

MR. LEWIS: Why couldn't they take 15 other words?

THE ARBITRATOR: Not without testing.

MR. LEWIS: What do you mean, without testing?

THE ARBITRATOR: Seeing if they are valid questions.

MR. LEWIS: Valid words?

THE ARBITRATOR: Valid questions, doing what you want them to do. That would be my impression, now, and I'm no expert on this matter and I would like to hear the experts testify to this question.

* * *

[190] **THE ARBITRATOR:** On the record, please.

In a discussion off the record between the advocates of the parties and the Arbitrator, it was agreed that the company would obtain booklets of an exam which purport to be similar to the types of questions given on the aptitude test for the instrument men. The company will obtain these booklets and give them to the union for examination.

MR. HOUGHTON: I might add that this pertains to three divisions of the EPSAT Test, the three that we have not already supplied.

THE ARBITRATOR: Correct. Let us proceed then.

* * *

[194] **Q. (By Mr. Lewis)** Mr. Kanous, is everybody in the Edison Company tested these days in trades jobs, for example? **A. No.**

* * *

[197] **Q.** Well, I'm trying to understand your testimony, and it was a wide range of the reason for testing. Let me ask a very elementary question. Why do you test people with aptitude tests developed by industrial psychologists? Why do you do it? **A.** To try to insure that there is a reasonable possibility that the employee will be successful in all aspects of the job both for the benefit of the company and for his own benefit.

Q. And how do you know that you are successful in that endeavor? **A.** By the validation studies which we conduct on the tests.

Q. I am trying to understand how you can find out later on you were right instead of wrong. You can do that statistically? **A.** Yes, I think you can.

Q. But you would never know, would you, that you left out a certain fellow who might have been better because you hadn't tried him? Isn't that a safe statement too? **A.** The use of the term "never know," that is accurate.

But the part of it that says "because you hadn't tried him" is not necessarily accurate.

* * *

[199] Q. Did you testify, sir, that the person either would be acceptable or not recommended as a result of these testing devices? [200] A. In the instrument battery, that is my understanding of the current method of making recommendations to the department, yes.

Q. In other words, it is a pass or fail system? Is that another way of saying it? A. Essentially.

* * *

Q. Let's say you have a specific line which is the demarcation point between pass and fail, and the line is, say, 50, using a figure hypothetically, and one fellow is 49 and the other fellow is 51. Are they "head and shoulders" different? A. If we have established a 50 and that has been agreed upon as the cutting score, I guess I would have to say that that is indeed "head and shoulders difference."

Q. One point on one side of the barometer and one point on the [201] other side of the barometer would constitute "head and shoulders difference"? A. If that were the standard that had been established, I would say that that is the case.

* * *

[202] Let's get back to definitions. A battery is what? A group of sections of tests? A. A battery of tests is a group of tests collected according to some empirical procedure which combines those tests to produce a single score at the end, some combination of the results of the several tests; in the case of instrument man, the Minnesota Paper Form Board and the Engineering and Physical Science Aptitude Test.

Q. My next question: Is there a total score in the entire battery or are there specific scores in each section? [203] A. In the case of the instrument man test battery there is a score for the Minnesota Paper Form Board and there is a score for the Engineering and Physical Science Apti-

tude Test. These are combined in an empirical way to produce a battery score.

Q. What do you mean, empirical? A. I mean that mathematical statistical procedures are used to define what those scores will be, what those numbers will be.

Q. What kind of mathematics? You mean weights and things? A. Yes.

Q. Ratios and proportions and what kind of mathematics? A. Statistical analysis, correlation coefficients, reliability coefficients.

Q. Who decides the weight to be given to each part of the exam or each facet of it, for example? A. This essentially arises from the empirical or mathematical process by which the study is conducted.

* * *

[213] Q. All right. When you have a battery of tests, and let's say like the EPSAT—that has six parts to it, right? A. That is correct.

Q. Do you ever relate each of the parts as between a successful candidate and an unsuccessful candidate, or do you just take the total score and relate that? Do you want me to make that a little clearer? A. Yes.

Q. For example, let's say Employee A was successful and Employee B was unsuccessful. Do you take the vocabulary of Employee A and compare it with Employee B's? Do you take the mathematics of Employee A and compare it with Employee B? Do you take the arithmetic reasoning and compare that between Employees A and B? Or do you just score up the whole battery and say that Employee A has got so much and in the whole battery Employee B has got so much and decide on that point who wins? A. Are you speaking of the instrument man test battery as it is applied?

Q. Yes. In the EPSAT Test you had six parts, right? [214] A. Yes.

Q. I want to know did you take each of the parts and compare them between Employee A and Employee B, Em-

ployee B, Employee C and Employee D? A. We do not.

Q. You take the total? A. The total of the EPSAT, that is correct.

Q. And if that is theoretically 1 to 100, if it is 80 for Employee A and only 65 for Employee B—well, you have a pass-fail system, don't you? A. Yes.

Q. You have a cut-off point, right? A. Yes.

Q. Let's get my 50 back again then. If you have 60 in Employee A and 49 in Employee B, Employee A wins? A. That battery of tests is composed of more than the EPSAT Test, so we have to include both tests to determine whether the man is going to be above the cutting score or below it.

Q. That will be my next question. Do you then take the paper form board? Is that what you mean? A. The paper form board, that's right.

Q. And you take the results of Employee A and relate them to Employee B as a separate item also? A. No. It's a combination of the two tests rather than each [215] being separate items.

Q. All right. So that theoretically—I'm talking theoretically just as you did now—if one or two parts of EPSAT, for example, were declared to be unreasonable or invalid, you see, then the whole test scoring system would be unfair, would be a distortion, wouldn't it? A. I don't—

Q. Suppose somebody, some judge or arbitrator, said, "Look, we don't think vocabulary is really necessary here." A. He might say that.

Q. All right. Now, you have already scored people based on vocabulary in part, haven't you? A. There were vocabulary items in the test, yes.

Q. All right. So that if somebody ruled vocabulary out, and this successful fellow, Employee A, scored high on vocabulary and B scored very poorly in vocabulary but B scored very well every other way, that would produce a much different result, wouldn't it? A. As far as whoever

made the judgment that said that the vocabulary was not useful, it would make a difference to him, I'm sure.

* * *

[220] Q. Now, did you say you had two sets of batteries for instrument men, an old set and a new set? Were they revised? Did I understand that correctly? A. Yes.

Q. When was the first set? Years ago? A. I believe it was about 1958-59 that the original battery was [221] built and used. It included the three tests we spoke of earlier.

Q. The Wonderlic was in it? A. The Wonderlic was in it, and that was used up to about '69-70, at which time—just prior to that time a revalidation study had been conducted and the new battery consisted of only two tests with a different scoring or recommendation system.

Q. The old test included the Wonderlic, you said? A. That is correct.

Q. The EPSAT? A. The EPSAT.

Q. And the paper board? A. Minnesota Paper Form Board.

Q. The new set only includes the EPSAT and the paper form board? A. Yes.

Q. Not the Wonderlic? A. Not the Wonderlic, as I understand it.

Q. You have excluded the Wonderlic? A. For some reason that I have no knowledge of, it was dropped. It is now no longer included.

Q. I was going to ask you if it is safe to say some men were tested under the old system, including three parts to the battery, and these men in recent years were tested including only two parts to the battery? [222] A. I have no knowledge of that in the case at hand.

Q. What did the Wonderlic test do? A. The Wonderlic test is a generalized test of ability to learn new things, facility with learning new things. That is a layman's description of the test, incidentally.

Q. This is not to say that the new test doesn't envision

that people have the ability to learn? A. No, the new test doesn't envision that. They have either none or some.

* * *

[240] MR. McILROY: Could I ask one more?

Say, for instance, you did give this test and say I did very well on vocabulary, general information, word recognition, but on mechanical comprehension I did very poorly. You told me I would be graded straight through, right?

THE WITNESS: Yes.

MR. McILROY: And you would have to use a figure of 100, possibly, right?

THE WITNESS: You will have to pursue it further, Doug. I'm not with you.

MR. McILROY: Say when you total everything up, I could get 100 if I did every one perfect. I came out with an 80, but my mechanical comprehension was very poor. Would I still pass and be allowed in the instrument shop?

THE WITNESS: Yes. You would get 80. That is the total score on all the parts. Of course, this is a [241] hypothetical example. That's not how the instrument man battery necessarily is—

MR. McILROY: But you did say you don't take each section and score it; you take the overall test?

THE WITNESS: That is correct.

* * *

[241] WILLIAM L. ROSKIND

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

By MR. HOUGHTON:

Q. Mr. Roskind, your full name and position with the company? A. William Loveman Roskind. I am the Ad-

ministrator of Psychological Services of The Detroit Edison Company.

Q. And what division or department of the company do you work within? A. This is the Organization Planning and Development Department of the Industrial Relations Department.

Q. And who heads up your division or department? [242] A. Mr. William Dull is the Manager of Organization and Development. Mr. Robert Schwab is the Vice President of Industrial Relations.

Q. What is Dr. Worbois' position? A. Dr. Worbois' position is that of the industrial psychologist in the Organization Planning and Development Department, and I report directly to him.

Q. And who does he report to? A. Mr. Dull.

Q. Within the group that reports to Dr. Worbois, how many are there and what is your total overall function? A. There are currently five employees in the group that report to Dr. Worbois. We have a counseling psychologist and a secretary that report directly to Dr. Worbois; I also do. And there are currently two employees that report to me. One is the personnel examiner who administers the test. The second is a technical clerk.

Q. So these tests when they are given in various locations throughout the company for various jobs are given and administered by someone that reports to you? A. That is correct.

Q. Mr. Roskind, when did you first come to work for Detroit Edison? A. I started with the company in the spring of 1966 as a [243] research associate, an intern position with the company while I was working on my doctorate in Industrial Psychology.

Q. Prior to 1966 what educational training had you received in the field after high school? A. I received a Bachelor's Degree from Wayne University in Psychology, a Master's Degree from the Psychology Department in General Theoretical Psychology, and I had completed almost

all of my course work toward the doctoral degree in Industrial Psychology at Wayne.

Q. At this point you came to work for Detroit Edison? A. That is correct.

Q. In your position as a staff research assistant or whatever the correct title is, what were your job duties? A. To conduct personnel research studies as directed by our director, Dr. Worbois.

Q. At the time you first came to work in the department was Mr. Kanous still working in that area? A. Yes, he was. At that time he was working almost full time in the department in this work group.

Q. Did you have an opportunity to work with him at all on the instrument man B battery? A. Not in its original development. It was developed prior to my coming to work for the company.

Q. What work, if any, did you do with him in connection with [244] the instrument man B job? A. Nothing specifically with him on that job other than discussion of the test battery as one of the many test batteries that had been developed and that I was looking into. We were doing some normative research at that time and that was one of the many test batteries we were considering, but nothing specifically in the area of validation.

Q. So the validation work that was later done then was done by you, not Mr. Kanous? A. By myself and Dr. Worbois.

Q. How long did you hold that initial position, from 1966 until when? A. Until approximately 1970, at which time Mr. Kanous left our group and I moved into a position called the research psychologist.

Q. What are the duties of the research psychologist position? A. Again conducting personnel research work, test development construction, validation studies, some work in human factors and work in terms of counseling with employees who had taken tests, and many other jobs or duties that are wholly unrelated to this instant case.

Q. A couple of those areas I would like you to comment on just briefly. You mentioned you were involved with test [245] construction research. What does that involve? A. Actually the development of new tests.

Q. This is involved then with determining what types of aptitude you want to consider, constructing the questions, the sequence of questions, validating the test, this sort of activity? A. The entire process of test construction as you have described it and of course in great detail.

Q. And the validation work that you were going at this time, is that similar to the validation type studies that Mr. Kanous referred to? A. Yes, it is.

Q. Am I correct then that you have done test construction research and validation studies in areas other than the instrument man job? A. Yes, that's true.

Q. How long did you hold that position, from 1970 until when? A. For a year or maybe a year and a half, at which time as a result of an organizational change I became Administrator of Psychological Services, and that is the position that I hold at this time.

Q. So at the time this grievance arose and at the time you were doing your validation work with respect to the instrument man job you held what job title? [246] A. Well, I think part of the time of the revalidation study I may have been under the duties of the research psychologist, but at the time that the grievance occurred I was the Administrator of Psychological Services.

Q. All right. Mr. Roskind, I would like to direct your attention now to the instrument man battery of tests that we have mentioned in the testimony. Mr. Kanous stated that he developed the initial work up to the point that you came on the scene and that subsequent to his leaving that particular area, the test was refined in certain ways; the Wonderlic portion of the test battery was dropped and the resultant battery was then validated.

Stating initially, if you will, what was your first contact with the instrument man test battery and how did you hap-

pen to be assigned to do work in that area? A. It came to the attention of our group that the technical engineers in the plants wanted to talk to us about the instrument man battery. We scheduled a meeting with the representative group of the technical engineers, about four men. They explained to us that they were experiencing some difficulty and approached us on the subject of possibly setting higher standards for the instrument man battery.

They were concerned with the problem that some of the men that had met the "acceptable" standard on the [247] original instrument man battery were not working out very well on the job. They were not able to do the entire job without a lot of back-up additional assistance in order to do the job well, and of course their immediate concern was being in a position to select instrument men who in fact could do the entire job. So they approached us on the subject of raising the test standards.

We explained to them this is something that can't just arbitrarily be done. You can't just raise the test standards by some increment to accomplish this; that you have to have some empirical basis for adjusting the test standards either up or down, and we told them that we would be glad to look into this situation with consideration to revalidating the entire test battery and seeing whether or not the cutting score was at a point where it should be. So we agreed to undertake a revalidation of the instrument man test battery at that time.

Q. By "that time" we are speaking of roughly what period? A. Very early '70 or late '69.

Q. And ultimately when the test was revalidated and the new battery was established, that was then utilized in the fall of 1970? A. That is correct. I think the revalidation study was written up by Dr. Worbois in 1970, in August, and I made the decision [248] on September 21, if I recall, 1970, to initiate the new test standard at that time.

Q. Did you actually take part, yourself, in work on the revalidation? A. Yes, I did. I suggested this technique for arriving at the performance evaluation of the current instrument men and I took care of some of the statistical analysis of the data.

Q. Let's do this step by step so we understand how we got to the test battery that was used in this case. When the initial decision was made to revalidate the test battery, what did you do then? Take some time, if you will, and explain your thinking as to what you did and how you developed the validation. A. We decided that we would look at these very same tests that we had been using in the instrument man battery. We had no reason to believe that they were no longer working. We decided to consider those same tests, and we decided to get as hard as possible a measure of job performance as we could obtain, so we suggested to the technical engineers in the plants that they go back to the other engineers and arrive at a series of job tasks that could be evaluated objectively.

We gave them some criteria for developing this set of job tasks. We told them we wanted them to develop a set of tasks that would be representative of the job of [249] instrument man, from some of the most simple tasks to some of the most complex tasks, and we asked them to develop a set of tasks so that they would have several items at each level of difficulty.

Based on their conversations with us, we suggested a method of evaluating an individual on those tasks, and we suggested a procedure that resulted in the evaluation being made on whether an individual would be able to completely do the job, that small task, that part of the job, completely independently on his own in a satisfactory manner or whether he would need some assistance in performing that task, assistance that he might get by asking someone else or making a phone call, or at the poorest level of performance possibly able to accomplish that task but only with

some direct assistance, someone standing right next to him guiding him through the job.

We arrived at 23 tasks representing some five different levels of complexity or difficulty in terms of performance in the job.

Q. Excuse me for just one second. These are all actual tasks that the instrument men perform within their job? A. That is correct. Dr. Worbois and myself did not generate these tasks. We did not think them up. We asked the engineers to select from the actual jobs specific tasks that [250] are representative of that job.

Q. Go ahead, please. A. The engineers came back to us with a set of tasks that they had achieved agreement on as being representative of that job and agreement on in terms of that job and agreement on in terms of the level of complexity of those tasks in the job.

We made up some evaluation sheets for those 23 tasks. We sent the evaluation sheet to the various supervisors of the instrument men and asked them to evaluate each man's performance on the job in terms of those tasks specifically, and we obtained at least two evaluations of each man's work—that is, two independent evaluations from two different supervisors—in an attempt to get reliable estimates of this man's ability to perform these tasks.

Q. Were these independent judgments? A. Yes, they were independent judgments in the sense that each man filled out the evaluation form independent of the other one's knowledge of how he filled it out. With that information then as to these individuals' ability to perform the job we correlated the test performance that we already had on file for these individuals.

Q. Let me just interrupt you for a second and ask you a question. Supposing you had a particular man in certain tasks and you had three supervisors that rated him, and one rated him at [251] the top, one rated him in the mid-

dle, and one rated him at the bottom. How would you handle that? A. Well, that would be an unreliable estimate of this man's performance, and that situation did occur in several instances and then this man was removed from the rest of the validation study. We cannot estimate the man's ability to perform the job if we can't get a reliable estimate of his ability to perform the job, so in several cases specific individuals were removed from the study and were no longer considered in the study.

As a point of information, this same scale was used many, many months later for some other individuals and some of these same individuals, and it turns out that the reliability of this performance evaluation is extremely high.

Q. So this particular performance evaluation itself has a higher degree of reliability? A. That is correct.

Q. Then what was the next step? A. The statistical analysis of the data, comparison of the test scores, performance on the test with performance on the job. This statistical analysis led us to this correlation of the .71 of the predictability of the test for the job.

It led us to the conclusion that two of these [252] tests were working quite well in predicting performance on the job. The third test was not making enough contribution to the prediction to justify continuing using that test in the test battery—that's the Wonderlic Test—and at that point we decided to drop that test from the test battery, and then this further analysis which led us to this cut-off point and this, as we have been saying, two-tier evaluation of performance on the test, the "not recommended" and the "acceptable."

Q. Is this a fair statement then? As a result of this research and study, basically two things were done: Number one, the Wonderlic Test was dropped from the test battery; and, number two, a new cut-off point was selected for the remaining two tests which constitute the battery? A. That is correct, yes.

Q. You did not change the actual form board test or the EPSAT Test that you were using? You used the same test, only just those two? A. That is correct.

Q. Is there any way you can graphically demonstrate for us or show us what we mean by this .71 correlation either on the board or verbally so we understand what you are talking about? A. (At the blackboard) I think so. It is going back to a [253] diagram that Mr. Kanous has already used several times, and maybe we can put it in some perspective in terms of several different diagrams.

If we talk about performance on the job, performance on the test on those two axes, if we had had a perfect test, again low performance on the test would have indicated in every case low performance on the job. That is to say we can take any one individual person and we can represent him on this scatter plot and we can get two bits of information from his location on the scatter plot. If the individual is located at this point on the scatter plot, that tells us that in terms of performance on the job he was high. In terms of performance on the job he was high. In terms of performance on the test he was also high.

Now, if we had had a perfect test with perfect prediction—and that never happens—all the individuals would have fallen along this line, and that would be represented by a correlation of 1.00.

We've got to look at two more things. This would be the cutting point on the test and the cutting point on performance on the job. This would be successful performance or high performance. This would be poor performance or unacceptable performance on the job.

If we had had a test that had no predictability [254] at all, a correlation of zero, the scatter plot instead of looking like this would have looked like this would have looked something like this. Again the two cut-off points with high performance on the test and low performance on the test;

low performance on the job and high performance on the job.

We would have had a test where there would have been some people who scored low on the test and performed poorly on the job; other people who scored low on the test but were some of the best men on the job; we would have had some individuals who scored very high on the test and were very poor or unable to do the job in its entirety, and other individuals who scored very high on the test and were some of the best instrument men we've ever had, and every position in between if we had had enough instrument men tested.

So in other words, this scatter plot instead of being a line would be filled in with individuals all over it, and if we were to try and encompass the individuals, we would have almost a circle or the entire chart filled up.

In this case with the zero correlation, these would have been accurate predictions and these would have been accurate predictions, and if you look at the area that is covered by the accurate predictions, it would have been about 50 percent of the whole surface or the whole area that [255] we are talking about over all individuals that we made decisions on. We would have been right half the time and we would have been wrong half the time.

Q. So rather than use a test with a zero degree of predictability, you might as well flip a coin, I guess? A. You might just as well flip a coin.

Now, a test with a correlation of .71 would look something like this. Again the job is on this dimension. The test is on this dimension. This is the cut-off point on the test. This is the cutting point on the job as to whether the performance is acceptable or unacceptable. I don't know whether it's a little bit wider than that or a little bit narrower than that. It is kind of hard to pick .71 and put that on the board.

But what I am saying is this: If you look at the area again where you are making erroneous decisions, it is small relative to the area where you are making the correct decision. These are individuals that should not be on the job. These are individuals who the tests say will do good on the job. The purpose of the test then is to maximize this type of decision and reduce the errors that are made.

A correlation of .71—well, as far as this test is concerned, what we find is this: of the people who are successful in terms of passing the test, these people [256] have 76 chances out of 100 of being successful on the job. Of those individuals who perform poorly on the test, 18 chances out of 100 of being successful on the job. So there is quite a difference. You might even call that a "head and shoulders difference."

Q. How does the .71 correlation compare with other correlations on aptitude tests used in other industrial job situations? A. You very, very seldom find a correlation of a test predicting based on aptitude performance on a job anywhere near as high as .7.

Q. That then would be considered to be a very successful predictor? A. Definitely.

Q. With respect to this study that you have just told us about that you and Dr. Worbois conducted, has anyone else tried to validate this particular battery of tests for the instrument man B job or did anyone else review your work or the company's work? A. Approximately a year later, the National Compliance Company under a contract conducted some revalidation studies of a number of different test batteries for our company. This was one of the test batteries that was included in their study. In their initial attempt—

Q. Before you get into it, can you identify this company and [257] what their business is. We are not familiar with

that. A. The National Compliance Company is an organization that is located in Dallas, Texas. They are doing extensive work these days with utilities on civil rights cases. They basically consist of legal and psychological professional people who offer services to organizations in almost the entire area of compliance with EEOC guidelines and all the federal guidelines on equal employment opportunity.

Q. And within their own personnel they have competent psychologists who can validate tests; is that correct? A. That is correct.

MR. LEWIS: How would he know that, Ralph?

MR. HOUGHTON: I assume he has worked with it. I guess we have to develop it.

THE WITNESS: These individuals who conducted this re-validation study for NCC were industrial psychologists, Phds, members of Division 14 of the American Psychological Association and practicing psychologists.

Q. (By Mr. Houghton) What did they do for Detroit Edison Company, particularly with respect to the instrument man B? A. They conducted a re-validation study which in effect included a slightly larger sample than was in our original sample, changed the job evaluation procedure by reducing the number of items in it, and conducted their own study based on the [258] test performance that we were able to provide them and the performance evaluations that were turned in at that time by the man that the instrument men work for.

Q. I guess you have told us already, number one, you did establish a high degree of reliability between those two samplings? A. Of job evaluation, performance evaluation, yes. There was a very high degree, indicating that this scale that we did develop or this evaluation instrument that we developed is a very reliable evaluation of a man's performance on the job.

Q. Then using the second set of evaluations and fewer actual number of test jobs or criteria jobs, as you may call them, what results did the National Compliance Company come up with? A. They were able to establish the validity of these tests for predicting performance on this job.

Q. And what was the correlation that they determined? A. I would have to look it up in the document to check it out.

Q. Is there a written document that was furnished to the company? A. Yes, there is.

Q. If you would refer to that, please. A. The correlation obtained by the NCC in their study was .41.

[259] THE ARBITRATOR: I lost track with that exchange. Correlation with what now?

THE WITNESS: I'm sorry. Their validity coefficient, .41 in terms of the correlation between performance on the test and performance on the job.

Q. (By Mr. Houghton) That .41 figure corresponds with the .71 figure? A. It is the same type of figure. It is different in magnitude but the same type of figure, and the difference in magnitude probably can be explained in terms of the short form of the evaluation, the job evaluation form that they used.

Q. Perhaps you better take a little time and go to the board and explain that to us. With tests like this where you have a high degree of reliability, a .71 correlation, how would you expect this company to come up with .41? What is the reason for the differences? A. If you want a complete explanation of that, I would like a chance to go through their report in a little bit more detail before I try and answer that question, if I may.

MR. HOUGHTON: Fine. Sure. We will move on to something else for the moment and perhaps you can take a look at that over the lunch break.

(Discussion off the record)

MR. HOUGHTON: The record will reflect that the [260] document referred to by Mr. Roskind was introduced by the government in court. The government removed from that sheath of papers the instrument man validation study and did not desire to have it introduced, and counsel for The Detroit Edison Company ultimately did obtain its introduction into evidence.

Q. (By Mr. Houghton) Mr. Roskind, looking at the test then that is utilized in the instrument man job, you have what you consider to be a test with a high degree of reliability. You utilize it in the testing procedure.

Let's turn particularly to a situation where you are going to give the test and assume a situation where these candidates for this particular job opening were given this battery of tests. How do you go about setting up the testing procedures and insuring fairness and so forth in the application of the test? A. When the employment office contacts the testing group and informs them that they have a group of individuals to be tested, an appointment is set up and the individuals are scheduled for testing.

When the individuals report to the testing office—and I would say that 99 percent of the testing is done in our own office under conditions that we control in terms of lack of interruption and noise and interference that might distract from the testing situation—an individual [261] who has been trained to give the test in a standardized manner introduces the test, talks to the candidates about the test, to some degree explains to them why they are there, what the test battery is about, how long it is going to take, and answers whatever questions about it that would be appropriate.

The tests are then administered in a very carefully controlled standardized manner so that it doesn't matter which day or which group you are in when you take the test.

When the testing session is over with, the candidates are released to go back to work, and the tests are then scored against a scoring key provided by the publisher of the test. The scores are obtained and summed according to our standard procedure, and the evaluation is made then as to whether or not the individual is "acceptable" if they meet the standard or "not recommended" if they don't.

This result is then relayed to the employment interviewer who is responsible for this particular job selection or posting, and I think just recently there was a posting for instrument man at Monroe, and the plant asked if we could do the testing at the plant so as not to have to bring the men all the way downtown. The individual went out and checked the facilities at Monroe first to see if they [262] were appropriate to be used for testing before agreeing to conduct the testing at Monroe.

Q. Now, when you have the group assembled and they prepare to take the test, is there any introduction by the examiner as to how the test should be taken, how answers are marked, sample questions, anything of this sort? A. Yes, there are. The directions are provided to each candidate when he is taking the test, and the personnel examiner goes through the directions and reads them out loud. In most cases there are sample questions. The examiner makes sure that each person has worked through the samples and understands what it is that is expected of them during the test before the test begins.

For example, in the case of form board, the directions take the candidate through four sample problems, and then after the directions are finished the candidate is asked to work four more problems on his own. The personnel examiner then checks to see that the individuals have in fact correctly solved those problems so that when the person is actually taking the test, they know what it is that they are supposed to be doing while they are being tested.

There is no attempt made to test a person in such a manner that they don't understand what it is that is expected of them.

Q. Now, when it gets down to scoring the tests and you use a [263] scoring key, this is strictly objective device whereby someone uses a key to determine the number of correct and incorrect responses? A. That is correct. By an objective device we mean that it doesn't matter who scores the test. We only have one person who does that, the personnel examiner, but it wouldn't make any difference if someone else did it. If they did it according to the instructions, they would arrive at the same answer. It is not something where judgment enters into the scoring of the test.

By the way, the individual that we are talking about who does this work has a Bachelor's Degree in Psychology and is working on a Master's Degree in Psychology which he will probably receive sometime this year.

Q. With respect to the actual scoring of the exam, on that form board test, for example, if I were to blacken in two of the spaces where the directions say only blacken in the one correct one, and I blacken in two in the hopes that one of my two will be correct, how would the scorer handle that? A. There are several keys for the test, one that indicates the number right, another that indicates the number wrong, and by placing both keys on the test, we could pick up even two wrong answers if you had tried and were wrong in both cases. By a scanning of the answer sheet to determine whether two [264] or more items were marked, we would determine that, and this is done.

Q. Then that item would be disregarded? A. That is correct, and that is mentioned in the instructions that the person that is taking the test understands that.

Q. Now, you get all these tests scored and you come up with your composite battery score and you are then placed in the position, I guess, of determining those who have received a "acceptable" rating and those that don't. How do you establish that. And in particular, how did you establish this cut-off point you have referred to? A. At the time that the tests are being scored we have this cut-off point that has been mentioned, and if an individual has a battery score that is equal to or greater than that cut-off score, they are given the evaluation of "acceptable." If their battery score is less than that standard, then the evaluation on that is "not recommended."

Q. Why did your research indicate you should change from a three-tiered system to a two-tiered system?

MR. LEWIS: I thought he explained that already. You mean the Wonderlic?

MR. HOUGHTON: No. That was dropping one of the tests. I'm talking about the scoring.

MR. LEWIS: Oh, the scoring? All right.

[265] THE WITNESS: The reason we dropped to a two-tier system was this is as fine a discrimination as we could make based on the data that we had.

Under an ideal situation you might be in a position to say that a range of scores from this point to this point would result in a probability of such amount of success on the job. An individual who has a slightly higher score in another range of scores has a greater probability, and you might be able to spell out what that probability is and so on through a whole range of tests. In other words, you might be able to grade them A, B, C, D or E or something like that, or a range of 0 to 10, 10 to 20, 20 to 30 and specify the percent or the probability of successful candidates you might expect in each one of those scores.

We do not have enough information in this data to make any finer discrimination than just those two discrimina-

tions that we have made; that is, either "acceptable" or "not recommended." So that is all we could do.

Q. (By Mr. Houghton) In other words, you are saying with the available information it would be rather arbitrary and not necessarily valid or accurate to make any sort of a finer discrimination? A. That is correct, yes.

Q. And this cut-off score is something that is statistically [266¹] determined prior to the test being given; is that correct? A. Yes. It doesn't change from day to day. It is one standard and it is used for everyone.

Q. That same standard has been used each time this battery has been given for all the men that take it? A. That is correct.

MR. HOUGHTON: I believe that's all I have for the moment.

(Luncheon recess)

THE ARBITRATOR: Have you finished your direct examination?

MR. HOUGHTON: Subject to going back to that one point that we left.

Q. (By Mr. Houghton) Mr. Roskind, to finish up the direct examination, before the break we had made reference to the National Compliance Company's study, and you testified that there was a .41 validity coefficient on that particular study and that the company's validity study showed a .71. Could you explain for us, if you will, the nature of those two studies, whether they differ or not and what the reasons for the difference are. A. Well, the basic studies do differ to an important extent from each other, and perhaps some background information on the National Compliance Company's study would help to understand [267] this difference. At the time that National Compliance came in and did the validation study on the instrument man battery for us, they were at the same time working on ap-

proximately 15 other test batteries and they had a contract to do all 16 batteries in a six-month time period, and they were looking for ways to do it as quickly as possible. It is quite a tremendous job to take on revalidation of 16 test batteries in one organization in that short a time period.

They agreed for practical purposes to use people who had been hired between 1967 and 1970 or '71—I'm not sure which of those two years at the time—because we had their test information on keypunched cards, and that we put on tape, shipped to Dallas to go through their computer. It's a rather large number of bits of information to process.

When they did the study, they discovered that there were only about five individuals who had been hired during that time period, and that is too small a sample to do a validation study on, so they came back to us and asked us for a list of all the instrument men who were currently working on their job, and we obtained their test information by hand from files, the records.

In their original study, the one that turned out [268] to show up with only five individuals in it, they shortened the performance evaluation form from the 23 items that we originally worked with to just 14 items. They excluded the nine items that represented the highest two levels of job complexity or performance, and at the time that they came back to do the study over again, this time using all of the individuals they could locate who were on the job and for whom we had test scores, they didn't have time to go out and change the evaluation form or reprint it, so they went with just the 14 items out of the original 23.

And prior to lunch you asked me if I could show on the board why we find a difference in those two validity coefficients, the difference between .71 and .41. I think I probably can.

In the original study, as I mentioned, we had 23 items and we divided this variable of job performance up into five

different levels of complexity of jobs. Since they eliminated the top nine items and the top two levels, their scale of performance only went this far, so that if you are to plot where an individual stands in terms of his ability to perform the job on this scale and his performance on the test, we have eliminated this area, and all of these individuals who were in this area have to thus be moved over into this area.

[269] That changes the shape of this, and of course I've said before the shape of this corresponds to the correlation. As this shape goes from a line through this football shape to a square or curved or funnel shape to put all these people in this area, it loses this numerical index, so it drops from .7 to .4, and that is probably the reason why you find this difference if you look at the two studies, but it really doesn't make any difference anyhow.

Q. Why is that? A. Well, because all they were trying to do was determine whether or not the tests were valid, and the test can be valid with a .4 or a .3 correlation or even lower than that. That means if they are valid, they are doing a service in terms of predicting performance on the job from performance on the test.

Q. So whether it is .3 or .4 or .71, within psychological circumstances all of those scores would in fact be determinative of a valid test? A. Right. All of those correlation values that you mention would in fact indicate if they were significant—and all of these were—that the test is a valid predictor of performance.

Q. And do I also understand that the National Compliance Company did in fact in their validity study not consider the total job, but merely portions of it, leaving out the higher levels? A. That is correct.

Q. The validation study the company performed examined the total instrument job? A. Yes, it did.

Q. Now, in utilizing the test with respect to this grievance and the men involved in this case, that test was utilized on the basis of the company validation study or the Na-

tional Compliance validation study? A. The company's validation study. The National Compliance study did not occur until—well, this study wasn't put together until this year.

Q. And that was either a valid or not valid type study for purposes of this Title VII case? A. That is correct.

MR. HOUGHTON: I believe that's all I have.

[270] BY MR. LEWIS:

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[293] MR. LEWIS: Well, I could take the position there shouldn't be any tests at all. I have pretty good evidence that there shouldn't be.

* * *

[295] Q. (By Mr. Lewis) Let me ask you a couple of questions on your direct testimony, Mr. Roskind. On your graphs I'm [296] interested in what is known on this axis here as—is this job performance? Is that right? A. That is correct.

Q. What do you mean, job performance? How did you get job performance? A. In this particular case the way we got the measure of job performance was to use the scale of 23 items selected by the technical engineers in the plants to represent tasks that are typical of the job instrument repairman and vary in complexity from simple to very, very complex tasks.

Q. They are just the tasks; not how people perform them? A. They are the tasks and whether or not people can perform those tasks to a degree of proficiency.

Q. That's my trouble. How do you arrive at how Jim Jones performs well? A. In order to answer your question may I ask you one? Have you seen those 23 items?

Q. No, but I mean no matter what they are, see, what you are saying is there is an axis there called job performance. A. That is correct.

Q. And I'm wondering how you arrive at where you put people on that? Are you just talking about the task which

the job calls for or are you talking about how well the men perform the tasks? [297] A. May I use one of those documents?

Q. Sure. A. I mentioned that we obtain the measure of the man's ability to perform his job by looking at 23 different tasks that men are asked to do on the job. I would like to give you some samples of those various tasks. In terms of pressure measuring instruments, one of the tasks was: "Install mechanism and calibrate a Bourdon tube pressure gage."

A second task: "Install a new diaphragm and calibrate a draft gage."

These are some of the tasks. They go in range and complexity to something involving—these two are under the area of pressure measuring instruments. We looked at temperature measuring instruments, level measuring instruments, flow measuring instruments, alarms and trips, plant water practices, some miscellaneous tasks like troubleshoot control air dryer malfunction, up to some control systems and components; for example, "Set up the boiler feed pump recirculation control system with newly-installed instruments and controls." I'm not going to go through all 23 tests, but these are the types of things that the instrument man does and is expected to do.

Q. Is that bottom line on the graphs symbolic of the task or symbolic of how the people perform the task? That's my [298] trouble. A. Okay. I'll tell you what it is symbolic of. We asked for and obtained a measure of the man's ability to perform each one of these tasks.

Q. Who did you ask that from? A. The individual that the instrument man works for.

Q. Oh. Then it is a matter of the supervisor giving you his judgment as to how well people perform? Is that what you are talking about? A. It's not just the immediate supervisor. We in each case asked for at least two supervisors to independently evaluate each individual's ability

to successfully complete one of these tasks under three different levels of efficiency.

Q. Then the bottom line is not a mathematical certainty or a statistic? It is a judgment? It derives from somebody's judgment of how good a man works? A. It's an evaluation of this man's performance on the job as taken from the sample of the job.

Q. But the test is a mathematical figure, isn't it? A. I understand what you are getting at now.

Q. In other words, my trouble is on the one axis you've got your test scores, how well people perform on tests; is that right? A. That's correct.

[299] Q. On the other axis you've got somebody's report of how they think people do on jobs. A. We also have a numerical value on that other axis.

Q. How did you get a numerical value from a supervisor's judgment? A. The performance evaluation was scored in terms of the proficiency of the individual in accomplishing that, in terms of whether he could accomplish it by himself independently, whether he needed some assistance in accomplishing it, or whether he needed a great deal of assistance in accomplishing it, the number of items that he could accomplish, and by multiplying the evaluation on each items by the number of items that the individual could accomplish, we arrived at a score for each individual.

Q. You mean the man agreed with the supervisor that he could or could not do certain functions alone or that he needed help on others? Is it a matter of mutual understanding between the employee and the supervisor, or the supervisor just says, "I don't think that bird can do something alone and I'm going to report it that way"? A. Well, I don't think it was either of those.

Q. How was it done? A. I think the supervisor sat down, and based on his knowledge of that man's ability to do the job, he evaluated him in [300] terms of his performance, his ability to complete a specific task. And as I

said, we did not accept the evaluation of just one supervisor. We had at least two supervisors for each case, and unless there was complete agreement or a very high level of agreement between the two supervisors, it was not used.

Q. But it was without the knowledge and consent of the instrument man at the time; is that right? A. I don't know whether the supervisors asked the instrument men if they could evaluate them or not.

Q. On these tests do you give any differential for reasons of age or reasons of service? Let me give you something that has been bothering me, going through my mind while I've been on this case. Suppose the six applicants who applied for the job were all 60 years old and they were all former instrument men, pretty good ones, I suppose, from other places. How would the test batteries look at that with respect of the age and experience of these people? A. In terms of the two tests that are currently in the instrument man battery, the Minnesota Paper Form Board Test is a very reliable test over the entire age range. Once a person reaches the age of about adulthood, about 21 years of age, the performance in the Minnesota Paper Form Board is neither increased nor decreased with age other than as a result of [301] vision, which can be corrected, you know, in terms of wearing glasses. There are some tests that do differ with age. When those tests are used in a test battery, a correction for age is also used.

Q. You do give credit for age or a correction? A. There may be credit or there may not be credit, but I'm saying a correction is made for age.

Q. Correction in favor of the applicant or what? A. It would depend on that specific test.

* * *

[304] Q. Okay. You went from a three-tier system, is that what you called it, or three-marking system, "acceptable," or "not recommended," and "recommended"; right? A. We had three evaluations.

Q. All right, three evaluations. When you went from three to two, would you mind illustrating on the board to us how you [305] dovetailed the three into two. Did the "acceptable" category join with the "recommended" category, or did you take half of it or what? Do you understand my question? A. I think so. If this is the entire range of performance from low to high on the test under the previous system—and I can't pin it accurately on this narrow scale, but let's say we had a range that was "not recommended" and a range that was "acceptable" and a range that we called "recommended." I'm not saying this is the proper ratio; I'm just showing we have several ranges.

Q. Fine. A. The new evaluation would be something like this. "Acceptable" and "not recommended." In other words, the line is now somewhere in the area that the "acceptable" range was in before, so that in effect in reference to these postings, the way they are stated right now, if an individual under the old system had to have the "recommended," he had to actually obtain a higher score on the test, so in effect more individuals are in fact meeting this standard, because this "acceptable" range has been lowered from the "recommended" which is what in effect the technical engineers in the plants were actually demanding in terms of the people they were considering.

Q. You had a range here of "recommended," right? [306] A. Yes.

Q. And then you had another range of "acceptable," right? A. Yes.

Q. So that this piece now from here to here—do I make it clear?—is lost from the "acceptable" standpoint? A. That is correct. We are able to make a finer discrimination now with this test, and this is where the cutting point belongs.

Q. How did you arrive at that? What is your justification for, let's say, splitting it down the middle between

"recommended" and "acceptable"? A. We didn't split it down the middle. It is closer to the "recommended."

Q. All right, whatever it is. How did you go about it? A. We sat down with the data that we had which reflected the individuals performance on the job, his performance on the test and—

Q. Let me stop you there. You are talking about the supervisor's reports of performances on the job? Is that what you are talking about? A. Their reports of their observations of performance on the job. We are not talking about their evaluations of this integrity or his initiative or his motivation or his cooperativeness or anything like that, just their reports of [307] their observations of his performance on the job.

The technical engineers identified for us the minimum level of performance that was satisfactory for performance on the job as they saw it. We divided the instrument men up into two groups, those who were successful on the job or satisfactory, who were performing the job in its entirety, and those individuals who could not perform the job in its entirety, and then plotted their test scores on a graph, and you have a copy of this in this document that we gave you, this validation study.

Q. These were their old test scores? A. These were the original test scores plotted against a cumulative frequency percent. We obtained two different curves, a curve for the individuals who were considered poor performers on a job, and the second curve for the group of individuals who were considered successful or performing the job in its entirety.

This axis represents again the test scores, and without knowing who these individuals are that are falling on these curves, we look for the point that gives you the maximum discrimination between these two curves, and that fell at 10.3 on the battery score of the individuals

who had taken the test, and that is where the test cut-off was then established, at 10.3.

[308] And the reason for establishing it there is that that allows us to maximize our prediction in terms of who will be successful on the job based on their performance on the test. That is a standard procedure that is used by anyone doing this type of research.

Q. I'm sorry. You took the poor performers and the good performers, right? A. Right.

Q. And you struck it down the middle? A. No, it is not down the middle. My graph doesn't show this very well. If you look at the graph in this validation study that we gave you a copy of, you will see that this line actually falls at a point that gives you the maximum distance between these two curves.

Q. Maximum distance between the two curves? A. That is correct, which gives us or allows us the maximum discrimination that can be made among those two groups.

Q. Now, these poor performers are on the job? A. That is correct.

Q. And it is somebody's evaluation that they are poor performers? A. You might say if it were up to the supervisors or engineers, they would just as soon not have them on the job.

[309] THE ARBITRATOR: To make sure I understand this, what you are saying is you took a score which would represent all of the people who were represented as high performers and the net percentage of those at the top of the poor performance level; is that it?

THE WITNESS: This represents the individual scores of an individual on this test. What we do is we take this group of poor performers and start plotting, and this ranges from 0 to 100 percent of the group of individuals. As you plot this, you find that if you've got a normal

distribution of performance, you will end up with this "S" shaped curve, this sine curve. You end up with that sine curve for both groups.

Then the point is to pick a point that will give you the maximum discrimination between those two groups.

So that you do have some overlap. You have some of the poor performers actually performing well on the test.

THE ARBITRATOR: That gives you what amount of the error of estimate, I suppose.

THE WITNESS: Actually it really just gives you the cutting score. I don't think you can determine the error of estimate from this, not directly from this.

Q. (By Mr. Lewis) How many people were involved in this particular thing? Do you know? A. In that particular study that we are talking about right now [310] there were, if I recall correctly, 33 individuals.

Q. From different plants? A. Yes.

Q. Monroe included? All plants? Or don't you know? A. If there were instrument men working at Monroe at that time, they were included. It was from all plants.

Q. What year was this? A. This study was done in early '69—or I'm sorry, late '69 and early '70. I don't know whether Monroe was staffed. My memory is not clear on when Monroe was staffed.

Q. I don't either. But then you went to the other plants? Is that what you are saying? A. To all plants that were operating at the time.

Q. Instrument men? A. Yes.

Q. Both the As and Bs or just the As? A. Just the As.

* * *

[315] (Short recess)

Q. (By Mr. Lewis) Does Edison buy all of its tests now from vendors or do you make some or do you revise some

you buy? A. We don't buy all of our tests from vendors or publishers. We do in fact make some of our own tests, and offhand I can't think of an example of taking someone's test and revising it or changing it at this point.

When you make tests of your own, what do you do? Something like the supervisors committee at the head of the table, or is it some other pencil-and-paper type thing? A. Not all of the tests are paper-and-pencil tests. When we construct a test we decide on ability that we feel is relevant to the job under consideration.

We normally look at tests that are available commercially, tests that are being used by other professionals, whether they are available commercially or not, and may in fact decide to construct our own test, and whether it becomes a paper-and-pencil test or some other [316] form of a test would be dependent upon the job that that test was supposed to accomplish.

* * *

[329]

MR. LEWIS: My last set of questions for cross examination to Mr. Roskind is a look at Company Exhibit 5.

Q. (By Mr. Lewis) Addressing yourself to Company Exhibit 5, [330] the first section of the EPSAT Test is vocabulary. How is that essential to an instrument man's job? A. Are you referring to this?

Q. Yes. It is called vocabulary, item 1. A. The vocabulary section of the EPSAT Test deals with physical science terms, whereas the vocabulary that you have in this exhibit deals with general terms.

Of course in the test we are attempting to get some measure of this individual's aptitude in the area of physical science.

Q. Physical science? A. Yes.

Q. This looks like a crossword puzzle to me. It's what I do in the paper every night. Is this the kind of thing you are talking about? A. This is the format of the items. The items themselves are different. Instead of being general vocabulary as this exhibit is, the words that you are asked to deal with in the vocabulary section of the EPSAT Test deal with vocabulary in a very limited, very specific area, the area of physical science.

Q. But you haven't told me yet how that relates to a man fixing a group of meters. You told me there's a lot of work there and so forth and they are words that are identified with [331] something or with the job. Is that what you are saying? A. The words themselves are not necessarily words that are used per se on the job. We are looking at an aptitude, looking at an ability to learn in an area, and the individual's demonstration of his ability to deal with vocabulary in physical science gives us an indication of his ability to master this area.

Q. Do you buy the vocabulary tests? A. The vocabulary portion of the EPSAT Test is a part of the test. The test comes as a package.

Q. The authors of the test had no idea you were going to apply it to an instrument man. Isn't that the point? A. The authors of the test selected a group of standard tests. When they put the EPSAT Test together, they selected tests from several other different areas. They specifically had in mind attempting to predict the ability of individuals to successfully learn physical science principles and then deal with those principles in a specific type of job. This was done under the direction of the Department of Defense during World War II.

Q. All right. Is the same vocabulary test used for different jobs, say mechanic-fitter, bricklayer, electrician? Is it used for clerical help, professional help, technical help, the same vocabulary test? [332] A. This particular test

is used only for the instrument man test battery in this company.

Q. This specific vocabulary test? A. That is correct.

Q. Other vocabulary tests are used for other jobs such as I have enumerated? A. Yes.

Q. But you have to pick and choose your vocabulary test that you want to give? Is that what you do? A. That is correct.

Q. Oh, I see. The authors make up dozens of these combinations? Is that what you are saying? A. There are probably dozens of vocabulary tests on the market, yes.

Q. And you select one which you think would be most useful for the bricklayer and most useful for the mechanic and so forth? A. We don't have vocabulary tests for bricklayers and mechanics and masons. We have one for use for graduate engineers and we have some vocabulary items in a Wonderlic Test, and this is the only other vocabulary test that is used by the company as far as I know.

Q. And for whom do you use this besides instrument people? A. We don't use it for anyone else besides instrument people.

Q. But you use vocabulary tests for other people, you said. [333] A. I just got through mentioning we have a—

Q. Engineers? A. Graduate engineers and other technicians.

Q. What kinds of jobs would they be? A. These are people with a two-year certificate from an advanced technical school.

Q. You mean relay technician? A. Relay technician.

Q. Okay. Is that all or are there others that you can think of? A. There are no other tests in the trades where we use a vocabulary test.

Q. Just those that you gave me? A. That is correct, and this is not really a vocabulary test.

Q. Well, that's what it says. I'm only quoting what it says. A. What we are actually dealing with is a verbal comprehension test, the ability to understand or comprehend these technical terms and the way they are used as a measure of aptitude to learn the things that are necessary to learn to perform the job and to deal with the contents in the job.

In this particular exhibit that you have here it is called a vocabulary test. The items look very much like that except they are different words.

Q. All right. The second test, general information, is not used in the specific tests we are talking about? [334] A. That's right.

Q. The third test is arithmetic. A. Yes.

Q. Well, I will stipulate with you that some arithmetic should probably be necessary from an instrument man's standpoint. Is this the range of it? A. That's not the complete range of the test, no.

Q. What is the overall range of the arithmetic test? A. I'd have to pull out a copy of it and look at it to tell you. But it deals with working with fractions, if I recall correctly, with decimal points and to some degree some algebra.

Q. Is it in the test? A. If I recall correctly, yes. I don't have a copy of the test to look at.

Q. Does it go further than algebra? A. It may have some elementary geometry. I'm not sure. I'd have to check and see.

Q. Does it go into trigonometry? A. No.

It may involve algebra and geometry, some? A. It may.

Q. Other than that, it's multiplication, addition, use of fractions? [335] A. That is correct.

Q. The next item is number series. You say that is not used? A. That is correct.

Q. The next item is figure classification. You say that is not used? A. That is correct.

Q. The next is mechanical comprehension. Now, why and how is this relevant to the instrument man's job? A. This test deals with the ability to deal with mechanical principles, and I think you might even stipulate that the instrument man's job involves some mechanical principles dealing with gears, levers, buoyancy, weights, volumes, balance.

Q. I would stipulate that much. I will stipulate that he deals with electronics and meters and recording instruments and things of that nature, yes, but some of these things are sort of little trick questions, in my opinion. A. That raises an interesting question, Mr. Lewis.

Q. Go ahead. A. In most of these standardized tests that have been developed and normative data has been gathered on, an effort has been made to eliminate the trickiness of a question. The entire purpose of testing someone using these types of aptitude tests is to get the most accurate estimate of the individual's [336] ability that one can obtain through a paper-and-pencil test.

There is always someone around who can design a clever tricky question that will in fact trap somebody while they are taking a test. I think we can all generate those kinds of items. But if you want to get the best estimate of the individual's ability, you must in fact insure that the items are of such a nature that if the individual understands the mechanical principle in this case, that he should be able to solve the problem. Otherwise you are getting a measure of how tricky your questions are rather than the individual's ability. So a lot of effort has gone into taking trickiness out of the items.

If an individual gets one of these items wrong, it is normally because he does not understand a common principle rather than that he was tricked into missing it.

Q. Well, I'm not so sure that the instrument man would have to know the principle involved in, for example, 3, right, figuring the volume and area of a cube versus a cylinder. Why would he ever reach that point? A. I'm not an expert on the job of the instrument man, but if I understand some conversation that I've heard, I understand that the instrument man works with displacement and buoyancy and calibrating instruments and the principles that the instruments operate under, and in order to use those [337] principles, apply them to the job, an individual would have to understand the concept of volume, which is probably the underlying principle in this question.

Q. What about item 9, the airplane? A. Before I go to every single item—

Q. I'm not going to cover every one. This is all. I'm just going to ask you a few. Why would item 9 be relevant, a little bit of aerodynamics or aeronautics? Why would he have to know this? A. What we are talking about here is resultant forces, and if I understand correctly again, the instrument man deals with resultant forces.

In an aircraft operating, with one engine stopping all of a sudden, you've got about six different forces operating at once, and unless you can in fact anticipate and understand which forces are going to operate, you can get yourself into serious problem in an airplane and I imagine you would be unable to solve some of the problems that the instrument man solves in terms of the measurements that he is trying to take in calibrating instruments and in understanding the operation of an instrument.

Q. Well, the instrument man may very well understand the principle of forces in his particular territory, in his shop, [338] but he may not understand the forces which take place in the airplane situation. A. If he fully understands the principles of forces, he may in fact do very well and there is a high probability he will understand the forces in a different situation.

It is a question of the underlying principle. If you understand the underlying principle, you should be able to take that principle and apply it to situations with which you have not previously worked. Otherwise we would have to have an instrument man asking somebody a question every time he came upon a new situation.

Q. Are these, generally speaking, items which should have been learned in school? Is that what you are saying? A. Some of these items are learned in school. Most of them are learned over many, many years of dealing with mechanical types of experience through experience in mechanical processes.

Q. I will agree that the calculation of volumes and areas and that cube and cylinder is learned in school, but I doubt if I ever learned anything about the airplane in school. A. Okay. I don't know whether you learned anything about the airplane in school or not, but you may or may not have learned something about forces in your everyday life as you drive a car.

[339] Q. All right. Word recognition is not used, it says here. Scrambled letters is not used, it says here. A. That is correct.

Q. Checking is not used, it says here, and then we get to the paper form board. Now, as a psychologist, why is the paper form board test relevant to the instrument man's job? A. Mr. Kanous yesterday spent quite a bit of time describing the relationship between these items and the instrument man's job. I could say in short that I agree with him thoroughly in terms of his explanation of that. I don't think I could say it any clearer. I can repeat it.

Q. Well, I didn't have this exhibit when Mr. Kanous was on the stand, of course. I got it later. You might summarize it. A. The ability to solve the problems that are demonstrated or listed in this particular exhibit calls upon an ability that was studied before the turn of the century and was confirmed back in 1930 as the ability to deal with

spatially-related objects. In other words, what this test purports to measure then is the ability for an individual to deal with spatial relationships.

Q. It is a jigsaw puzzle type of thing? A. I've never heard it described that way, but I guess you would call it sort of cut-up or a jigsaw puzzle. It is far more complex, though, in—

[340] And I described the vocabulary as a cross word word puzzle type of thing. A. Yes, you have.

MR. LEWIS: It is very much what I do all the time in the papers, relate one word to another in filling a cross word puzzle.

I guess I have no further questions for Mr. Roskind.

THE ARBITRATOR: Mr. Houghton?

REDIRECT EXAMINATION

BY MR. HOUGHTON:

Q. Just a couple. Mr. Roskind, if one were to undertake this exercise that Mr. Lewis has been putting you through with respect to all of the various questions on the EPSAT Test and the form board test, would that in any way indicate to you or a competent psychologist whether the test was a good or a bad test or a valid or an invalid test? A. If we sat down and went through each one of those items on some test that I was not familiar with and on a job that I might be familiar with in great detail, I could not tell you whether or not there was a significant relationship between the items on the test and performance on the job just by sitting down and looking at each one of these items and trying to determine why or how that item might be related to [341] performance on the job. So in other words, no.

In fact, it would be very, very difficult to really determine what principles from looking at the items or what

job you might be considering, so looking at the items in and of themselves tells you nothing.

Q. Am I also correct that merely because you might go through here and identify a particular item, say item number 3 under mechanical comprehension, involving the situation asking whether the cube or the cylinder weighs more, that whether or not you on the face of that item could see that it related to the job or not also would not have anything to do with whether the test was valid? A. We might obtain complete agreement from every single instrument man in the company that that would be a valid item because it looks like something that they do on their job and in reality it may have no predictive value whatsoever. It may have no real validity. It may only have face validity. That's a possibility.

Q. And the way you actually go about determining validity for these particular items is how? A. Through a standard statistical process of validation.

Q. Like the validation experience you have explained to us earlier today? A. Yes.

* * * *

[343] THE ARBITRATOR: I would like to ask you the same question that I asked Mr. Kanous. I notice in the job description that the complete analysis is not contained here. I don't know what credit is given for education, but on the job vacancy notice it says: "Must have satisfactory credits in high school level math (two years) and science (one year). Proof of these qualifications will be required."

Will the quality of these high school courses affect a person's ability to score high or low in this test?

THE WITNESS: I would think that there would be some impact as a result of the quality of the courses, although we've got some evidence now as a result of a rather large-scale project called Project Talent that the federal government has been involved in for many, many years,

and as much as we have been led to believe that the quality of the building that we teach our students in—I'm talking about the elementary through high school—

THE ARBITRATOR: K-12.

THE WITNESS: —and the quality of the teachers and the environment and many other factors play a major [344] role in how well the students do in terms of academic achievement, this recent study tends to indicate that one of the major factors is the students themselves who enter, and there are some students evidently who regardless of the quality of the education they get are the kind that learn the subject anyhow and in many cases some of the students regardless of what quality of education is given them in terms of good quality fail to benefit from that education, and it seems to me that the student himself or herself tends to be the major source of variance in terms of academic achievement.

THE ARBITRATOR: Well, I think that might be correct, but I guess the one part of the exam which I am specifically directing my attention to would be the vocabulary part, and you are telling this panel that these items are taken from physical science.

THE WITNESS: Yes.

THE ARBITRATOR: So I assume there are such words maybe as "force" or something like that.

THE WITNESS: Yes. In fact, there are two samples right here.

THE ARBITRATOR: Oh, really? That shows you how well I have studied all these exhibits to this point.

"Iron is a metal. Water is a solid." But you have a multiple choice operation under your test that you—

[345] THE WITNESS: I'm sorry. I've got that confused. That is not the verbal comprehension portion; that is the

physical comprehension. But those are the kinds of terms that you might expect to find.

THE ARBITRATOR: Yes, but if you had the format of the vocabulary part which is contained in this particular booklet, Exhibit 5, and you had a word like "force," let's say, which perhaps isn't a very good example but let's use it, and then you had five choices, basically what you are doing is you have to know what "force" means and then relate it to another word.

THE WITNESS: That's correct.

THE ARBITRATOR: Here I guess I am not speaking with a great deal of expertise on high school education these days, but in the old general physics course one would assume you would run across some of these words. Is that a function of memory? Is that what you are getting at here?

I guess I am having difficulty relating that particular section of the test to mechanical aptitude rather than just pure memory.

THE WITNESS: This relates more to physical science aptitude, and a basic part of the instrument man job and of the training that he undergoes in order to accomplish the job does deal with physical science principles, and the vocabulary [346] section itself gives us an estimate of this man's ability in this area of physical science in terms of his understanding of these concepts.

THE ARBITRATOR: As of now?

THE WITNESS: As of now.

THE ARBITRATOR: So that if he hadn't had too much of that course, he may not have it now? I guess that is what my question is directed to.

THE WITNESS: That is true. He may not have as much as someone who has had a course, except that most of the

physical science concepts are ones that an individual would pick up outside of a physical science course also.

* * *

[353] By MR. HOUGHTON:

Q. Let me button this up to make sure I understand the point. Let me take this hypothetical, Mr. Roskind. Assume that a man has talent, and we will define talent in this case as an innate ability to be a good instrument man. That is the talent he has.

If he has that innate ability, that talent, and he comes along and takes your test, what is likely to be the result? A. It is quite likely that he will be able to identify that he has that talent.

[354] Q. He would presumably be a high-scorer on this battery?

THE WITNESS: That is correct.

MR. HOUGHTON: I have nothing further.

RECROSS EXAMINATION (Continued)

By MR. LEWIS:

Q. But he may not be? A. Anything is possible with the degree of statistical probability.

* * *

Respondent's Exhibit No. 9

[358] (Discussion off the record)

THE ARBITRATOR: Do you have any objection to Union Exhibit Number 7?

MR. HOUGHTON: No, other than the one stated on the record. I don't think that there is any showing yet that it is relevant to this proceeding, and I would just reiterate that the discrimination which is sought to be guarded against through the regulations of the Equal Employment Opportunity Commission by definition in Section 1607.3 applies to employees in classes protected by Title VII, and we have, of course, no showing in this case that we are involved in any discrimination like that. There are general policy guidelines. For whatever they may be worth in this case, we have no objection to your reviewing that.

MR. LEWIS: Well, the response to that is, of course, our contract covers all employees within the bargaining units, affected classes, unaffected classes, Indians, Irishmen, Catholics and Protestants, and the causes we try in these cases don't have anything to do with ethnic conditions at all. They cover everybody. Edison doesn't have several contracts, one for each ethnic group.

MR. HOUGHTON: No, I agree with that. That's why I say the contract is relevant but not this. This applies [359] to only certain special groups.

MR. LEWIS: The point is if this causes a change in the contract, it causes a change in the contract for all the ethnic groups under the contract, not just one.

* * *

[399] **MR. HOUGHTON:** Before we proceed with our last witness there was one other side track that perhaps we ought to try to reconcile at this point, and that involved the introduction of sample type questions on the three

parts of the EPSAT test that Mr. Lewis did not feel had been sufficiently covered earlier.

With respect to the physical science comprehension test, the only samples that we have been able to [400] find are that one that is already exhibited on Company Exhibit 5.

"With respect to the formulation section, we have found a series of questions that do reflect the type of questions used in the formulation section. The entitlement of this document is "Part Three: Mathematical Reasoning." This gives an example of the range and type of questions that would be found in that section of the test. We would propose that as Company Exhibit 8.

(Company Exhibit 8 marked for identification)

MR. HOUGHTON: The third section involved in the EPSAT Test that we did not as of the last hearing have examples of was the arithmetic reasoning section, and we have a series of examples of that type of thing indicating the range and type of question that would be found on that portion of the EPSAT Test. The document that exhibits those questions is entitled "Instructions for Part III."

We would propose that as Company Exhibit 9.

(Company Exhibit 9 marked for identification)

MR. LEWIS: I have no objection to these, but it doesn't finish the job by any means. These are steps in the right direction.

* * *

[401]

FRED J. LOCKE

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HOUGHTON:

Q. Mr. Locke, will you give us your full name and position with the Edison Company. A. My name is Frederick James Locke and I am technical engineer in the Monroe Power Plant.

[405] Q. Can you give us, if you will, sort of a quick summary or layman's understanding of what type of instrumentation you have at Monroe and what these instrument men do there. Generally what does their job cover, and is it strictly repair work or is there troubleshooting work involved? What do they do on a regular basis? A. Well, a lot of the instrumentation at Monroe is similar to other plants with the exception that we have a lot more solid state electronic equipment in much larger degree than any of the other plants. However, we still do have the [406] range of pneumatic controls, pressure gauges, thermocouples, level transmitters similar to other plants.

Now, the instrument repairman's performance on this equipment does involve maintenance of this equipment, but it also involves troubleshooting of control systems, and this type of troubleshooting would involve not only troubleshooting electrical or electronic systems, but in part pneumatic systems.

In addition to the troubleshooting, of course, they are involved with calibration of all of the instrumentation. In fact, this is one of the basic responsibilities that the instrument repairmen had when they first came down to the plant, to do all of the initial calibration work and check-out work on the controls and instrumentation after they were newly installed at the plant, so they did all of this initial calibration and check-out. This also included a lot of circuit check-out work to make sure that the circuits were functioning properly before this equipment initially went into service.

But in addition to that, now that the equipment is in service, they still have the responsibility for maintaining

these systems, troubleshooting and repairing any deficiencies that should show up or malfunctions that should show up. I think that covers it broadly, basically [407] what they are involved with at Monroe.

Q. How many instrument men do you have down at Monroe? A. Right now we have 12 instrument repairmen.

Q. Is that approximately the number you had when you filled the vacancies that are at issue in this case? A. No. At the time we had six men in the group and at the time when we filled these vacancies, we were expanding the group from six to 12 men.

Q. So in filling these vacancies you brought it up to the complement of 12? A. That's right.

Q. Now, in terms of this broad outline of work that you have described, are the instrument men expected to be able to do this work on their own? A. That's correct.

Q. This includes the calibration, troubleshooting and so forth? A. That's right.

Q. In other words, in layman's terms, if you are at one of the control boards in the plant and assume you are getting a false signal that indicates trouble when in fact there is no trouble, an instrument is malfunctioning. You would call an instrument man in and ask him to analyze that situation, find out what was wrong and repair it? A. That's right. There are some systems of a very complex [408] nature in which technician or engineering help may be required, but when you are talking in terms of control loops of not great complexity, we would expect an instrument repairman to be able to handle this.

Q. In terms of selecting instrument men, the six in question in this case, to fill out your complement down at Monroe, did you personally have a hand in that? How did you first get involved in that? A. Yes, I was responsible for setting up the initial posting for this job and I was involved with the actual setting up the screening of the bids that we received, the evaluation of the bids. My instrument

foreman assisted me in the evaluation work, and also the final selection of the candidates, of course, was my responsibility.

Q. Did you also take part in determining the basic requirements for the job as set forth in the posting? A. Yes. Previously the basic qualifications that were set up in the posting was established by the technical engineers. The department had actually directed a committee which was composed of all the technical engineers in the department to recommend the posted qualifications for the instrument repairman's job. I got in on the tail end of this when I first became a technical engineer, but the final format of the posting that we see right now, I was involved with the [409] setting up of those qualifications.

Q. Now, with respect to the qualification pertaining to the aptitude tests that we are talking about in this case, did you have occasion prior to finalizing those standards as set forth in the job posting to learn something about that test or review it with any of the other tech engineers or anyone from the psychological testing department? A. Yes, I have.

Q. What were you involved in in that regard? A. This was again when I just assumed my present position. Just prior to that the technical engineers had approached the Employment Department psychological division on the test which was already established on the old standard and had voiced the opinion that this test was not adequately, in our estimation, developing or, let's say, selecting instrument repairmen with the aptitude for instrument work. In other words, we were questioning if maybe the test was not selective enough.

And then just prior to my getting into it, I believe the psychological division had decided to revalidate the test, and at this point, very soon after I became technical engineer, is when Dr. Worbois presented the results of the re-validation of the tests. I happened to be in that meeting where he presented it—much of what [410] he presented

was very similar to what Mr. Kanous presented here at the arbitration—to help us gain familiarity on the validation methods and how they evaluated the test itself, and also how they broke down the method in which they determine on how an individual scores just how he would be—would he have a suitable aptitude for instrument work or not have a suitable aptitude.

Of course, in these sessions the exact test itself was not presented, so I was not familiar with the exact questions on the test or actually how the test was conducted. But as a result of this presentation I was aware of how the test was validated.

Q. On that basis did you then go ahead and use the basic requirement of a successful score on the test for the instrument men posted job? A. Yes, as a result of the presentation, and the technical engineers group on the whole was satisfied that what was being presented to us from the validation studies would give us a test that would adequately predict instrument aptitude. I was in full agreement with this conclusion of the technical engineers, and it was decided at this point here that the aptitude tests should be used as one of the qualifications.

Q. Am I correct that this basic requirement of using the [411] aptitude test is common throughout the Production Department, not just at Monroe Power Plant? A. That is right.

* * *

[415] Q. So that out of the 10 from Monroe then, we have two that did not take the test? A. That's right.

Q. And eight that ultimately ended up taking it? A. Yes.

[416] Q. Out of those eight were there any that received an "acceptable" score on the test? A. No, there were none.

Q. Now, after all these eight people had taken the test, and after Mr. Girrbach and Mr. Andrews had been given the opportunity, and you received the results, what did you do? A. Well, of course, first of all, I received the results

of the first seven candidates. Seeing that none of them had passed the test and had not met one of the qualifications that we stated here, at this point here I could see no need to go any further into checking the rest of the qualifications, because at this point here I would have to eliminate them from further consideration from the job.

• • •

[419] Q. As I understand it then, you still had five openings to fill and you had seven people who had met all the basic qualifications, including passing the test. A. That's right.

Q. How did you go about determining which five out of those seven should be given the job? A. Well, the next step now is to check the rest of the qualifications. Of course a lot of this, like attendance, we were able to receive their attendance records. However, at this point here it did require actually having to go out and interviewing these people, because there were a lot of questions on these qualifications which we would not be able to obtain answers to except by way of interview.

So the next step was to establish interviews with the people. I conducted most of these interviews although my instrument foreman assisted me on one of the interviews.

In the interviews and also based on the applications that we had received, I was able to determine that all of these people had met the education requirements.

As far as attendance was concerned, there was [420] a question on attendance of three of the applicants, but again as a result of the interview we were able to determine that despite what was evident from their past record, there was a satisfactory explanation for what was shown on the record and that their attendance record was acceptable to meet the stated qualification.

The other thing we wanted to determine too in interviewing these people is was there any physical disability

with the individual which would make it very difficult for him to handle a job of this type, and of course as a result of these interviews there was no question about physical disabilities with the exception of one candidate, but we were able to clear that up with a subsequent physical exam.

Q. As a result of this examination then, as I understand it, all seven of these people in fact met your basic requirements for the job? A. That's right.

Q. Now, as a result of this analysis and looking into whatever you may have looked into, including related work experience and so forth, did you find that any of those seven applicants were "head and shoulders" above any senior men? A. No, not really. Once we found that they had met the basic qualifications, of course we did review their background, [421] service, experience, any additional education they had, but we really could not find anything that we would consider "head and shoulders" in the background that would possibly accelerate one man beyond, let's say, a more senior man. We did not find anything like this.

Q. So did you then select the five senior men out of that group? A. That's right.

Q. That gave you your six men for the vacancies? A. That's right.

Q. Are these six men that were selected still working as instrument at Monroe? A. They all are right now.

• • •

[425] CROSS EXAMINATION

• • •

[426] Q. With respect to the posting, you said you made it a condition that the successful people had to get a [427] "recommended" score on the test; is that correct? A. That's right.

Q. Were you here at the other hearings in this case, Mr. Locke? A. You mean the previous dates of this hearing?

Q. Yes. A. Yes.

Q. I think the psychologist said they needed a 10.3 cut-off score. Is that correct? A. That's correct.

Q. You are familiar with that? A. Yes.

Q. In other words, if a man got a 10.2 cut-off score, he wouldn't be considered? A. I'd have to assume so, yes.

Q. Or 10.1? A. I assume so.

* * *

[435] Q. What training does the company sponsor for the instrument men? A. Well, at Monroe, of course, we have our own training program which was a program that was established for the department. So far, as far as I know, Monroe and possibly one other plant are using this program.

Q. What is it? Schools? A. It's in-shop schooling as far as the program is concerned.

Q. On-the-job training? A. That's right.

* * *

[436] Q. Now, these men you selected, did they come from instrument backgrounds, the five or six? Well, one did. Elliott, you say. A. Elliott did.

Q. What about the other five? A. No real basic background that I can see.

Q. So they had to learn the fundamentals just like I would if I went there? A. That's right.

* * *

[445] WILLIAM L. ROSKIND

* * *

[447] Q. (By Mr. Houghton) Mr. Roskind, during the testimony in this case we have made reference to the fact that there is a specific battery of tests used for selection in the instrument man job classification. It has also been indicated in the testimony that there are other trade type jobs where specific batteries of tests are used for those jobs. Can you tell us in general, if you can recall, which specific jobs there are batteries of tests designed for? A.

There are actually less than 20 specific jobs for which we have a test battery like the instrument repairman job. There is the job of a power plant operator, the substation operator, the linemen, the cable splicer, the draftsman, the customer serviceman—

MR. LEWIS: Just a moment. Would you repeat them, please? I didn't know you were going to read them off.

[448] THE WITNESS: I may not go through in the same sequence.

MR. LEWIS: That's all right.

THE WITNESS: Meter reader, power plant operator, substation operator, lineman, cable splicer, draftsman, customer office representative, customer serviceman, tab machine attendant, technician. And then getting into some of the other areas more clerical, key punch operator, typist, stenographer. We have a test battery for engineers and another for computer programmers and there may be several others that I haven't mentioned.

Q. (By Mr. Houghton) Those are all the test batteries designed for specific jobs? A. That is correct. We have several other tests then that are nonspecific in terms of a given job. This human relations battery of tests for supervisors, the clerical placement battery and the mechanical placement battery would be tests that would be used for people going into many different jobs.

Q. To differentiate between those two types of batteries then, one is set up and validated for specific jobs and the other is just in general areas such as mechanical and clerical type aptitudes? A. That is correct.

[449] MR. HOUGHTON: Thank you. That's all I have.

* * *

[453] MR. LEWIS: Well, Mr. Chairman, I want to make a few remarks and then call some of my witnesses. There will be more tomorrow, as you know, and maybe with luck we can get done tomorrow.

But I want to just talk a moment about what I consider to be my rationale in this whole case. The contract here says "head and shoulders"—famous phrase—i.e. the man selected must be "head and shoulders" over those bypassed. Thus, a precise cutting-off point is not commensurate with "head and shoulders," in my opinion.

For example, 10.3 being a passing mark, persons getting a 10.1 or a 9.9 are not "head and shoulders" below 10.3, and those getting 10.5 and 10.7 are not necessarily "head and shoulders" above. I don't have anybody's score as of yet, and neither do you. I mean 30 fellows took this test. They haven't had any exhibit showing who got 10.3, who got 10.4, who got 10.5, who got 9.5 and who got as little as 5.6 or something.

[454] My next philosophy is this: The qualification in the job posting—that is, "must obtain a minimum score of recommended,"—is not a licit or legal demand on the part of the management for a qualification in the face of a "head and shoulders" overall criteria.

Next, since the test is but one criterion in evaluating "head and shoulders difference," it cannot be the instrument to foreclose a person, and apparently this is what happened here ostensibly, foreclosed people, this test. Nothing else.

Next, thus far we have only had some sample questions in the Minnesota Paper Form Board Test and five parts of the EPSAT Test, and no scores for the—I was going to say for the 30 or 40 men involved. I could say that because Mr. Locke said there were 30 or 40 people that bid for the job, but the immediate was about 15 people. There were six taken and there were 10 others in the plant that bid, which is 16. But then I'm told one fellow was finaled recently or something, so that reduces it to 15, and another one refused to take the test, so I suppose we could reduce it down to 14 people that are immediately in the picture as compared to the 30 which Mr. Locke's stenographer said

she isolated and held aside while he looked at only the Monroe Plant ones, which I doubt, or if he did, he certainly knew there were 30 others over there that he could get, [455] and he admitted that on the stand.

So those are four principal concepts that I see in this whole case and I still have my petition before the NLRB to proceed and I still have with you the letter asking you to order certain things and subpoena certain things. So that's where I am as of now.

But we have some precedents which I want to first put in where the arbitrator refused to consider the minimum or the recommended score as being persuasive or controlling, and we have others that say the union should see the tests and I will put those in first; then I will have some witnesses, if you don't mind.

* * *

[458] I have indicated to Mr. Lewis that we would be glad to provide the test scores, ranging from the highest to the lowest, for all of these men at Monroe without having a name attached to a particular score so he can see the range and see how close certain scores were to 10.3, if that is of any interest. Thus far in the case I had not understood there was a request for that. If there is a request, we will be glad to provide you that.

MR. LEWIS: Wait a minute. I said to the Labor Board I wanted the tests and I wanted the scores.

[459] MR. HOUGHTON: Well, to the Labor Board, yes. I hadn't thought we focused on those scores in this case. We will be glad to give you that.

MR. LEWIS: How am I going to know who was "head and shoulders" above anyone else unless I get that?

THE ARBITRATOR: Well, you will provide the scores?

MR. HOUGHTON: We can provide that right now.

MR. LEWIS: Well, if it is just going to say A, B, C, D, E, F, G, and A got so much, B got so much, I don't think it's going to do me any good.

MR. HOUGHTON: Let us show you what we would be willing to provide. This document, which we would propose as Company Exhibit 10, is entitled "Battery Scores of Employees in Grievance PMO-123."

(Company Exhibit 10 marked for identification)

MR. LEWIS: We will consider it. That's all I can do at the moment.

THE ARBITRATOR: All right. Company Exhibit 10 is accepted into evidence.

MR. HOUGHTON: Now, the third point that I want to discuss is with regard to the request for tests. As I understand it—and I guess you haven't indicated this, Clem—[460] we have provided you with a rather broad range of sample questions for the form board test and five of the six parts of EPSAT, and as to those areas we consider that to be a fair representation of the questions.

You indicated earlier you were satisfied with the form board and the three parts that we had provided you. You were dissatisfied with the three remaining portions. We have provided you with extensive information as to two of those three. Do I understand at this point what you are concerned about is the physical science comprehension section? That is the only one?

MR. LEWIS: Yes. As I say, when I said we would consider Company Exhibit 10, that doesn't mean I'm totally in favor of it. I just want to give it respect. I'm not adopting it. I want to think about it.

You see, there's a lot of things I don't know about it. For example, what is the best score you can get? I need to know that and a lot of other things.

So rather than say I'm against it, I just tell you I'll give it respect and consideration.

THE ARBITRATOR: Let me ask this: Do you have the range of scores of the 30 people who took the test? Is that right? Did 30 people take the test?

MR. HOUGHTON: I don't think we have that here.

[461] MR. SCHLEICHER: I don't think 30 did take the test.

MR. LEWIS: The question was probably never asked. How many took the test? If somebody knows on that side of the table, I'll be glad to listen.

MR. HOUGHTON: I presume all you are interested in basically are the grieving parties who claim they would have been entitled to the job.

MR. LEWIS: The grieving fellows, yes. But the "head and shoulders" concept I suppose applies to the whole department. I don't know.

THE ARBITRATOR: Well, I was trying to get at Mr. Lewis' request, and I suppose the scores, at least to me, would make more sense if you had some idea of what might be the possible high score that one could receive on the test.

MR. LEWIS: Right.

THE ARBITRATOR: And then how did these people fall into that range. For example, can you get 15 on the test? That's what I'm asking. The 12.8 would represent maybe halfway in the "recommended" group, something of that nature.

(Discussion off the record)

THE ARBITRATOR: I would like one other piece of information too, Mr. Houghton. I would like to know the scores of the two who were in the "recommended" category but [462] did not get the job.

MR. HOUGHTON: You mean the one?

THE ARBITRATOR: I understand that there were seven candidates for the five openings after the incumbent elected to go to Monroe. That means that there were two people who had "recommended" scores but were not selected. They were evidently the junior men. So I would like the scores of the two junior men that were not selected.

MR. LEWIS: Right. The one man transferred laterally.

THE ARBITRATOR: That's the incumbent.

MR. LEWIS: He's on top, yes, the incumbent. Okay. Well, we'll go ahead. Maybe tomorrow we will develop more on that.

THE ARBITRATOR: Let me put this to you, Mr. Lewis, before you get started. I have not had placed before me the precedents that you were talking about in regard to this kind of information. I have not had any opportunity to research on the subject, and my best guess is that we probably will not conclude today until 4:00 or 4:30 and I won't have any opportunity to do that this afternoon.

So if you definitely want me to make a ruling on that question, that I am going to have to have time to look at it. I guess my preliminary view, based upon the kinds of [463] questions that have been placed before us, is that it does give us a fairly good sample of the kind of test that is being used.

MR. LEWIS: Except for one.

THE ARBITRATOR: Except for one. But if you want me to go farther than that, I will have to take a judicial recess.

MR. LEWIS: Okay, let's go ahead.

MR. HOUGHTON: Perhaps we could do this. If he wants to give us copies of these, we can reserve a ruling.

I will state that we will attempt to get a range of questions for the physical comprehension section, but that to date we have been unsuccessful, and Mr. Kanous and Mr. Roskind have indicated to me they don't know of any publi-

cations that exist that have sample questions like that. But we will continue to look and see if we can find anything.

THE ARBITRATOR: Very well. Let us proceed.

MR. LEWIS: The first authority I want to give you is this case on Central Soya Company.

(Union Exhibit 10 marked for identification)

THE ARBITRATOR: I assume, Mr. Houghton, there will be no objections to these. There is no question here as to the relevancy of these to the case.

MR. HOUGHTON: No. As to any of these, they [464] can be admitted as being arbitration decisions that may or may not be in point or be relevant. We would reserve the right, of course, to provide you with whatever authority we think appropriate.

THE ARBITRATOR: Yes. All I am trying to do is save time in terms of getting them in.

MR. HOUGHTON: No problem.

MR. LEWIS: Well, the abbreviated decision on this said:

"Employer acted arbitrarily when it determined that senior employee lacked ability to perform work of posted job vacancy on basis of (1) senior employee's failure to meet job requirements which apparently were specified for the first time, and without consultation with the union, when job was posted, and (2) aptitude and other general tests which were administered to employee by employer and which union was not allowed to see."

The arbitrator said the employee acted arbitrarily for those two reasons; therefore, the senior employee is entitled to a trial period on the job and so forth. I won't read the whole decisions, but it's there.

* * *

[466] The last one is just a short study that BLS made on the rules of psychological testing.

(Union Exhibit 12 marked for identification)

MR. LEWIS: I have the whole thing here. If anybody wants it, I'll be glad to run it. They studied a great many cases on this business of testing people for promotions [467] and this page gives the results of their findings, really, and under the recommendations it says:

"It is recommended that tests be used for promotion under the following conditions:

* * *

[468] "3. When the union has been provided the opportunity to see the test but not have it."

* * *

I will first call Fred Malone.

FRED MALONE

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. Fred, you work for Detroit Edison, do you? [469] A. Yes.

Q. What is your occupation? A. Instrument repairman A.

Q. You have a union job also? A. Yes, sir.

Q. What is that? A. Treasurer of Local 223.

Q. How long have you been with the company? A. Going on 28 years.

Q. Where do you work? A. St. Clair Power Plant.

* * *

Q. That's really what I wanted to know. How long have you been an instrument man, Fred? A. I started at Tren-

ton Channel as an instrument man 3rd in [470] 1947. I transferred to St. Clair in 1952, December 29th, as an instrument man B, and I was promoted to instrument man A in September of 1953.

Q. '53 to '73 is 20 years an A man, right? A. Roughly speaking, yes.

* * *

Q. Did you ever take a test for instrument man B or instrument [471] man A? A. No.

* * *

[473] Q. Taking a look at the vocabulary test, Company Exhibit 5, do you find that relevant to the instrument man job? I'll agree he should know how to read, write and speak English. Will you agree to that too?

* * *

[475] Q. (By Mr. Lewis) Is it necessary that you do some reading of words on the job and know the meaning of such words? A. Yes, I would say so.

Q. Where do you find such readings? Give us an idea. Is it vendors' manuals or something? A. Well, as you are reading a vendor's magazine, if you run across a word you don't know, then we go to Webster's dictionary and find out the meaning of it.

And with new instrumentation there are always new words. I guess every day in our standard way of life there are new words introduced and you won't even find them in Webster's dictionary until the next edition of it comes out.

Q. You mean they are vendors' words, very often? A. Right.

Q. But normally are the words you use and read ordinary words like the newspapers? A. Yes.

Q. And magazines? A. Right.

[476] Q. Instructions, you mean, like newspapers and magazines except for these occasional vendors' words that are mysterious? A. Right.

Q. And no matter who would be reading it, would they find it equally mysterious if there was an unusual word there, in your opinion?

MR. HOUGHTON: What was that?

MR. LEWIS: These vendors' words, these occasional words that you might—

MR. HOUGHTON: Was your question, though, no matter who was reading it, would they find it equally mysterious?

MR. LEWIS: Yes.

MR. HOUGHTON: How can he answer that?

MR. LEWIS: Maybe he can't.

Q. (By Mr. Lewis) Would even the most expert technician up there find a word occasionally that would stump him? Put it that way. A. Oh, I'm sure it happens.

Q. Sure it happens. And he has to go to either the technical dictionaries or call the vendor up and get the meaning of it; is that right? A. Sure.

Q. Okay. The next section of the battery which management presented us says mechanical comprehension. Now, do you [477] occasionally run across some of the principles enunciated by these diagrams? Let's try a few. For example, number 3. Do you ever have to figure the area and volume of particular solids and cones and things like that? A. When we are changing a meter—and maybe I can't put this in the right terms for this group. Say we are changing a meter from a 120 inch meter to an unknown meter—they don't even make a meter as such, but we want to make it a 50 inch meter. Then we have to use it.

Q. You have to figure area? A. We have to figure area, the displacement of mercury.

Q. What do you mean? Length times width? A. Right, Clem, and the volume, how much we put in. We have to figure linkages out so we get the right angles.

Q. Would this airplane question here—when the engine is out of order, which way would the plane go—be an aeronautical principle that you would meet? A. I can take almost any of these and connect it with practically anything in life. Sure, I can take the airplane and say that we got a

relay or a Stantrol and say that the A or B chamber becomes out of balance, the same way one engine fails. I can connect it that way. I can probably connect it with something in the every day walk of life. One leg gives out. What the hell, it's the same as the engine.

[478] Q. How about number 12: If the bolt is screwed in a certain direction, which way will it move? A. You mean the right-hand or left-hand thread?

Q. Right-hand or left-hand, yes. It isn't clockwise or anti-clockwise. A. Most of my life I've been an instrument man, and if I was just new, I don't know whether I would know a right-hand or a left-hand thread or not, but I would have to truthfully admit a vast amount of knowledge which I have in mechanics I've picked up in on-the-job training in 25 years as an instrument man.

Q. I see. And it is obvious to you when get a right-hand and a left-hand thread because of that on-the-job training over the years, right? A. Yes.

Q. How about number 6? Which man must pull in more rope to raise the box? Do you ever get into lifting with cranes or with derricks and so forth in connection— A. Not in this relationship here with pulleys or three pulleys compared to two pulleys. We do get into lifting stuff with what we call a come-along.

Q. What is that? A. It's just a hook with a ratchet, Clem. It's a newer type thing they use in place of come-alongs now. We do lift [479] things with lift fork truck, which has nothing to do with this. But we do not rig up any block and tackle.

Q. Does the boat in number 4 enunciate any principle to you that you would have to use as an instrument man? If the canoe is moving forward, which way will it go when the front man holds his paddle in the water in the position shown? Does that enunciate any concept to you at all that you would use in instrument repair work? A. Yes, I can picture many places where I could connect it to. Flow of water through a pipe, steam through a pipe. If there is a

curve in the pipe or if there is an object in the pipe that affects the flow, it would take more exertion. There are numbers of cases I can connect with that.

Q. There is a picture here in number 10 showing you a cold day and a warm room and the wind coming into A and going out at B and they want to know which way will the air move. Does that mean anything to instrument men? A. I would have to admit it does, yes.

Q. In what way? A. Well, a lot of our job is based on laws of physics, and I would check that with the law of physics.

Q. How about the paper form board? Did you get a look at some of those? A. I looked at the first page, Clem. [480] Do you remember when the psychologist was up at the blackboard telling you how to fit squares together and forms together? A. Yes.

Q. Is this a principle in instrument repair work do you think? A. I myself couldn't connect it to my work, no.

Q. You never have the chance to use that? A. No. Maybe a sheet metal worker could use it. I sure as heck couldn't.

Q. Do you get into any of these—you probably haven't had a chance to see any of them—mathematical reasoning questions? They look like small pieces of algebra. Do you get into algebra at all? A. Clem, I haven't for quite sometime. There was a time first starting out like we had to figure how many inches of water is related to how many inches of mercury and we would do that, but as the years go on, I guess I just take it for granted now I know what the ratio is.

Q. Do you have books that give you the answer? A. Oh, yes.

Q. For example, square roots and cube roots? You look up the number? A. Yes.

Q. You don't have to calculate anything like I do? A. No, not any more. It used to be that we had to. Like if we [481] were changing a meter, like I said, from a 120 inch to a 50 inch meter, then we had to know the square root to see

where 10 percent of the chart would be, where 80 percent would be, and we had to figure out the square root to get this.

Q. You figured it out or you went to a table? A. No, that time we figured it out. Now we have books that show us what the square root is.

Q. And the cube root, if you use it? Do you ever use it? A. No. Oh, on occasion we have on the coal pile, but that's been years back. We don't do that any more.

Q. And do you use angles, sines and cosines of angles? A. Yes, I would say we do, Clem, when we're adjusting linkages on certain type meters. Some meters have as many as eight, ten, twelve linkages, and then we get into angles.

Q. And do you have tables that you can refer to generally on angles? A. No. It's hit and miss.

Q. You mean you estimate it? A. Estimate.

Q. I see. A. On some particular instruments we know one angle has got to be horizontal where the next one has got to be at roughly 30 percent, so we don't get a protractor and measure it. We estimate what 30 degrees is and set it up that way, and [482] we run calibrations to make sure we're right.

Q. Now, these little arithmetic questions. If two apples cost a dime, how much will three apples cost? Obviously they cost a nickel apiece. Do you get into any of these little trick questions? A. We do some math on a lot of our test procedures.

Q. What? Multiplication? A. Multiplication.

Q. Addition? A. Addition, division.

Q. Subtraction? A. Subtraction.

Q. But do you ever do any trigonometry? A. No, I never have.

Q. Or geometry? A. No.

Q. Are most of the men capable in trigonometry and geometry, in your opinion, or wouldn't you know? A. I can only relate back to one of the qualifications on the job when I bid on it. I had to have two years of math, a year

of chemistry and a year of physics when I bid on the job back in 1947.

Q. Did you need to be a high school graduate? A. I believe so, Clem.

[483] Q. You don't need to any more, according to Mr. Schwab; is that right? A. That's right, because on the last four bids at St. Clair, the word "open" was behind age.

Q. Now, over the years you've seen a lot of instrument men undoubtedly in two plants at least, right? A. Yes.

Q. Has there been a rate of failure; that is, people who couldn't do it and you had to send them out? A. I've never seen that.

Q. In other words, what have you witnessed over the years? People of average intelligence come into the job and they learn it? Is that about it? A. Yes. We never had anybody that outshone the other man. We did have a man at St. Clair that left St. Clair, went to Enrico Fermi, came back as an engineering technician and he is due to graduate from St. Clair Community College next Sunday.

Q. What kind of job? A. Engineering technician.

MR. LEWIS. Do we have the instrument repairman job description in the exhibits?

MR. HOUGHTON. I believe it is Joint Exhibit 10.

Q. (By Mr. Lewis) This is the instrument man job description [484] and these are the typical duties. Are you familiar with it? Have you seen it many times? A. Is this at Monroe? Yes, because we are getting ready to go into a job evaluation. I've read this one over.

Q. Does it vary or differ at all from the others that you have had in St. Clair and Trenton and so forth? A. Oh, there are some differences, Clem, but I would call them minute. Let's see if I can point one out for you.

Under typical duty number 5, solid state. I do not believe—I'm almost positive we do not have that wording in our job at St. Clair.

Q. Do you have any solid state equipment? A. Oh boy, you better believe it!

Q. In St. Clair? A. Yes. We've got a room twice the size of this full of it.

Q. Do you know if some of the other plants have solid state? A. Trenton Channel. I've been there since No. 9 went into effect and they have basically the same unit that we have.

Q. Solid state? A. Solid state. I've been to Monroe on occasions. I've gone with the chairmen there looking over their control room, comparing it to ours at St. Clair, and they have more than we do because they have four units that are electronic controlled. They are bigger units. Maybe they've got six [485] times as much as we have.

Q. Yes, but Mr. Locke said that was more of same. Is that right? A. Right.

Q. Not more of something different? A. No.

* * *

[488]

ROGER SPRAYBERRY

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. What is your name? A. Roger Sprayberry.

Q. For whom do you work? A. Detroit Edison Company.

Q. What is your occupation? A. Instrument repairman A.

Q. Which plant? A. Monroe Power Plant.

Q. Do you have a union job also? A. Yes. I'm also the union chairman of the Monroe Division.

Q. How did you start with the company, Mr. Sprayberry? Bring us up to date if you don't mind. I'll put it all in one question. A. In October 1963 I started as an operator at Conners Creek Power Plant. I was hired as a C operator, they called them at that time. Then I went into

the B operator program, and bid out of the operating group into the instrument shop at the end of 1966. I actually entered the shop in January '67 at Conners Creek. I was at Conners Creek until the end of '69.

[489] January 5 of 1970 is when the job started at Monroe Power Plant with an interlude of two weeks when we were sent to a vendor's school, and the vendor was Bailey Meter Company. They are the prime group down there with the control system at Monroe.

Q. Now, were you given a test when you became an instrument man? A. I was given a test, and up until this arbitration started, I thought I was given the instrument test battery, but as of last Thursday, I believe, I'm not so sure now which test I took.

Q. Well, let's see what you did. Do you remember taking the Minnesota Paper Form Board, that jig saw puzzle sort of thing? A. I believe I took that when I hired with the company in the operating department.

Q. But not as an instrument man? A. I believe that once I had taken that, I didn't have to retake it. You will have to ask Testing. I'm not sure. I don't think I retook it.

Q. Did you take this vocabulary test? A. Yes, there was a vocabulary test.

Q. And is that relevant to the instrument man job, in your opinion?

[490] MR. LEWIS: Same objection.

THE ARBITRATOR: I understand your objection.

THE WITNESS: I feel anybody who really went to high school who has basic reading skills can read any instructions that we have to read as far as instrument repair work.

Q. (By Mr. Lewis) Is it about the same as a newspaper or magazine? A. Yes, I believe it is. There are some technical words that you come across, but those you pick up, I think, in every day experience. You see it once and from then on you know what it is.

Q. You may have to get help from time to time? A. The first time. The way I was trained, I was not sent to school and I did not take this DuPont course. I was like Fred Malone, only much newer. I was given on-the-job training in the Conners Creek instrument shop. When I bid on the job, I believe I was the first new man in the instrument shop in either 10 or 14 years, and I learned from the people who had been doing the work over the years.

Q. Say that again. You say there weren't any drop-outs in the Conners Creek instruments shop for 12 years? A. Right. And finally a man died and that's when I went into the instrument shop.

[491] Q. How many men were in Conners Creek? Do you know? A. I believe eight or nine.

Q. How many are in Monroe? Well, I think Mr. Locke said there are 12 now. Is that right? A. Right.

Q. Now, do you use some of the principles enunciated in this mechanical comprehension test, do you know? Do you ever figure the areas and volumes of squares and cubes and cylinders? A. Right. I would like to tell you one thing on these. You use the basic principle but you don't have to figure them any more. I think that's a change from the old instrument group to the new. For almost anything we do now there is a table.

I mean if you want to know the square of something or an area, unless you are starting to figure a whole system, you can just look in a book and it will tell you.

If you want to calibrate a flow meter of so many inches, it will tell you how many inches of water equal that many inches of mercury and you go from there. They have cross references on just about all meter work we do.

Q. You seldom have to calculate anything by hand? A. No, not really. Like Fred said, I agree you do have to [492] on angles setting linkages, but there again you do that by sight. I mean after you've done it a couple of times, I guess

you could say you estimate it. You certainly don't figure out angles like that any more.

* * *

[495] Q. Now, did you say you used in any way the form board test—I call it the jig saw type of thing—in your work at all? A. Unless the company relates that to figuring out putting linkages and parts back together on any instrument after you remove them, that would be the only thing where I could see you would use that.

* * *

[498] Q. I'm glad you brought that up. Tell us about the electrical certificate. Is that a requirement for this job ultimately? A. This is a requirement for an A instrument man. It is not a requirement for B instrument man. Now, a lot of people got their electrical certificate before they ever bid into the instrument group. I, for one, started it when I was an operator. I actually finished it when I was already in the instrument shop.

* * *

[501] Q. Let's take the new fellows that were successful in the Monroe Plant in this case that we are talking about. Did they immediately get assigned to people like you to learn how to do things? A. You would have to check with management to make sure, but it seems to me for the period of one week they were all given orientation, you know, to learn just the plant, the layout, walk around. They were with an engineer, I believe, to kind of break them into the way things are done at Monroe and where things are located.

And then after that when they were put in the shop on a steady basis, they started out, yes by working [502] with one of us A instrument men. I would say there was only one the day they came in or the week they came that could do anything alone, and that would be Dave Elliott because he was already a B instrument man.

Q. You mentioned that they went around with an engineer to learn the location of various instruments. A. I'm not really sure it was to learn the location of instruments. I believe it was just to orient themselves with the plant. We were in a construction period. I believe when they came, No. 1 unit was running and No. 2 was about ready to go on. The whole other half of the plant was in some phase or another of construction. Maybe just the steel work up on 4. It was just to familiarize them with the plant. I don't think you can call it as such, training.

Q. Would a man selected from the plant have an advantage over somebody selected from the outside, as to knowing where things are, at least? A. I feel he definitely would. I mean, to be an operator at Monroe he would at least have to know where everything in the plant is, and especially the things that interest him as far as his job as an operator, depending if he was an APP or PPO. That defines which areas they would be working in.

A fuel handler—which some bid on the job—[503] would have to know the fuel handling system, plus they also work in the power plant in the control room on running fuel, conveyor belt from the coal pile into the plant, plus up on various floors of the plant where the conveyors are located, so they would at least have to know the locations of equipment in the plant.

Q. And a stranger coming in from outside would take weeks to learn all of this stuff, right? A. Just to find out where things are, yes.

Q. Do you have any idea why all of the men who bid from Monroe Plant were rejected, in your opinion? A. To my knowledge, the only answer I ever received was because of test scores. They did not score the required "recommended" score.

Q. Are you familiar with the work that some of these six men who were bypassed did? A. Before they came to Monroe?

Q. No. While they were at Monroe, while they were bidding. A. Oh, the six that did not get the job, you mean?

Q. Yes, or the eight, whatever it was. A. If you tell me the names, I'll tell you which ones did what.

Q. Are you familiar with what Chinavare did? A. Yes. Chinavare was a utility man, which I believe we are the only one in the system who have utility men. I would [504] think it would be a very good job for breaking into a plant. He works directly with mechanics, also with the instrument shop, and also with power plant operators and assistants. They are used on any jobs in the plant to supplement the people working in the plant.

For instance, I have personally had one working with me for over a week on one instrument system on a boiler.

Q. How about Mr. Girrbach? A. Girrbach was a fuel handler from the fuel handling system.

Q. Did he have any familiarity with instruments? Did he know where they were and everything? A. He is an operator. They have handlers, operators and inspectors in the fuel handling group. He is an operator, so he would at least have a lot of experience reading and having to do with instruments for the fuel handling system; level indicators, voltage indicators.

Q. Is Mr. Andrews the one who was finaled? A. Right.

Q. So we won't talk about him, although that's a matter of grievance, isn't it? A. Yes.

Q. So his case is being protested? A. Right.

[505] Q. What about Mr. Wiley? Was he a good candidate, in your opinion, for the instrument shop? A. I think he would be because he scored an "acceptable" on the test.

Q. Some years before? A. Right. But besides that, he's been at Monroe, I believe, a little over two years. He now works in the tool crib and warehouse group. He came from Trenton Channel Power Plant and I do not know what his job was at Trenton, but he's been a good employee at Monroe.

Q. What about Mr. Foster? A. Foster is in the fuel handling department, also an operator, so I would think he would have the same qualifications as Girrbach.

Q. And Mr. Burger? A. With Burger, I believe the sequence of events with him, he came to Monroe fuel handling just to get to the fuel handling department so he would be in line for a Monroe Power Plant bid. There again the bidding system for Monroe operating group always starts at Monroe. People in the fuel handling group or instrument group or warehouse group would have first shot at a Monroe job before someone else.

So I believe he came into the fuel handling group, bided his time there, and then when an opening did [506] open up in the operating group, he bid into that group and that's where he is at this time. He is a Monroe Power Plant operator.

Q. He is a power plant operator? A. We could check with Ray to be sure, but I'm sure he is a power plant operator.

Q. When he bid for the instrument job, he wasn't a PPO, was he, or was he? Or don't you know? A. I can't say for sure.

Q. How about Mr. Ponozzo? A. Ponozzo comes under the same heading as Jim Chinavara. He was a plant utility man hired off the street for the Monroe Power Plant job. He did not come from another power plant.

Q. Was he familiar with instrumentation and things like that around the plant? A. Mark Ponozzo is the one that I worked with for one week on one group of instruments on a boiler.

Q. He was your helper? A. Right.

* * *

Q. How about Mr. Longton? Are you familiar with Longton? A. Yes, Gary Longton is presently working in our tool crib and [507] warehouse group, and to go back before that, he was also a plant utility man at Monroe Plant.

Before that I believe it was T & B, the contracting company he worked for, which is one of the major contractors at the Monroe Plant site.

Q. What kind of contracting? A. Well, they do a lot of things, steel work and—

Q. Building construction? A. Building contractor for the Monroe Power Plant. And then after that he quit there and hired in with Edison itself when the Edison people took over at Monroe Power Plant, and he started out in the utility man group and then finally ended up in the warehouse group, and the reason he went in there was at this time they were talking of this merger with PSG going into Maintenance.

Q. PSG meaning plant service group? A. The plant service group going into the Maintenance Department, which would mean they would no longer be able to bid on jobs at Monroe, as a Production Department employee would be able to do. So Gary wanted to stay in the Production Department group so he could bid into this job.

I'm not sure of the experience he's had. I believe his father owns Downriver Television Repair.

Q. Television repair? [507] A. I believe that's the name.

Q. That's electronics. A. That type of work, and he also has some college.

Q. Some college. How about Michael Pratt? A. Pratt is an operator and, if I'm correct, he's the senior PPO in Monroe Power Plant or close to it. He's up near the top of that range.

Q. And he's familiar with instruments, I take it? A. He's been there—

Q. Since it opened? A. Not since it opened. He was, I think, within the second group of operators that came down.

Q. Those are the men who were denied the job, right? A. Yes.

* * *

[513]

JAMES CHINAVARE

being first duly sworn, was examined and testified as follows:

* * *

[515] What is your job at Monroe Power Plant? A. Plant utility man.

* * *

[518] Q. I see. But then when you bid for the instrument job, you got this test battery; is that correct? A. Yes.

* * *

[519] Q. I see. Now, did you find the test related to instrument work, in your opinion? A. Not really.

Q. For example, do you remember the Minnesota Paper Form Board test, that jig saw puzzle sort of thing? A. Yes.

Q. Do you think that is related? A. Not to me it isn't. Maybe to management it is.

Q. How about the cross word puzzle thing I was talking about? Are you familiar with the vocabulary thing? A. Yes.

Q. Did you think that was related? A. No.

Q. How about the mechanical comprehension? Did you think some of that was related? [520] A. That could have been.

Q. How about the arithmetic and algebra and so forth? A. Some areas, yes.

Q. You should know how to add and subtract and divide and so forth? A. Yes.

Q. Are you fairly good at arithmetic? A. Yes, I'm average.

Q. You had no trouble in school on that subject? A. No.

Q. You are not familiar with the men who did get the job. They came from outside; is that right? A. Yes.

Q. So you wouldn't know their qualifications as against yours, would you? A. No.

Q. In your opinion could you do the job if it was given to you? A. Yes.

Q. You are sure of it? A. Yes.
 Q. Do you fix gadgets a lot at home and for neighbors or anything like this? A. Yes.
 Q. You do? Are you handy with tools? [521] A. Yes.
 Q. Fix your own cars? A. Yes.

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[522] GARY LONGTON

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. Your name is Gary Longton? A. Yes, sir.
 Q. When did you first hire into the Edison Company?
 A. March 1st of 1971.
 Q. Where did you hire in? A. At Monroe Power Plant.
 Q. You hired in directly to Monroe? [523] A. Yes, sir.
 Q. What was your occupation? A. I was hired in as a plant utility man.

• • •

[527] Q. Did you take the test battery for instrument repair? A. Yes, I did, sir.

Q. Were you surprised you didn't pass? A. Yes.
 Q. Did you ever take any other test with the Edison Company? A. When I hired in, I took their preliminary batteries or whatever they call it when you hire in.

Q. New employee? A. Right.
 Q. Did you find the test related to instrument man work?
 A. In my opinion, I couldn't really see where it did.
 Q. Can you remember any specifics that you thought were irrelevant? [528] A. It all seemed very general and I can't really think of any specifics.
 Q. Well, do you remember the Minnesota Paper Form Board test, which is sort of a jigsaw puzzle thing? A. Right, sir.
 Q. Did you regard that as relevant? A. Really towards the instrument job itself, I couldn't.

Q. How about the vocabulary test, like the cross word puzzle? A. It kind of threw me as to being relevant, but I could see where you might need to see new words and try to figure them out as you're going along in a new job.
 Q. You will agree you should know how to normally read, write and speak English, of course. A. Yes.
 Q. And how about the mechanical comprehension sections of it? A. I would say it had some relevancy.
 Q. How about the algebra and the mathematics? A. The mathematics, yes. Algebra, to the extent that I went into it, I didn't see where the harder problems would be used on the job, talking to other instrument men.
 Q. You've got to know how to add, subtract and divide. There's no question about that, right? A. Right.

• • •

[558]

Respondent's Exhibit No. 10

JAMES GODA

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. For whom do you work, Mr. Goda? A. The Detroit Edison Company.

Q. At what location do you work? A. Monroe Power Plant.

What is your occupation? A. I'm a fuel supply mobile equipment operator.

* * *

[562] Q. Did you take a test for the instrument man job? A. Oh, for the instrument? Yes, I did.

Q. Do you want to change your answer, that previous one? A. Yes. I thought you said before the instrument.

[563] Q. No. Now, do you remember getting tests such as these, word tests, vocabulary tests, or don't you? A. Yes, I do.

Q. Did you find those connected with or relevant to the instrument job? A. No, I did not.

Q. You did not. Do you remember getting some arithmetic tests? A. Yes.

Q. Did you have some arithmetic in school? A. Yes, I did.

Q. Throughout high school? A. Yes.

Q. Did you have a little science too? A. Yes, I did.

Q. Did you find the arithmetic related to the instrument man job? A. No, I didn't.

Q. Why do you say that? You never see the instrument men doing any of these word things or arithmetic? Is that why you say it? A. That's right.

Q. I see. Do you remember these mechanical comprehension questions? A. Yes.

Q. Did you find those related or unrelated or what to the [564] instrument man job? A. I found them unrelated.

Q. Why? A. Because they didn't have anything to do with the instruments.

Q. One more question on these tests and then I want to ask you a general question. Do you remember getting this sort of jigsaw puzzle thing called the form board test? A. Yes, I do.

Q. Did you find that related or not to the instrument man job? A. It could possibly be related to putting instruments together but—

Q. You mean piecing things together? A. Yes, piecing things together.

* * *

[567]

MARK PONOZZO

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. Your name is Mark Ponozzo? A. Yes, sir.

Q. Who do you work for, Mark? A. Detroit Edison Company.

Q. When were you first employed by Detroit Edison? A. February 8, 1971.

Q. What was your hiring-in job, Mark? A. Plant utility man.

MR. LEWIS: Is the plant utility man job description in evidence?

THE ARBITRATOR: Yes, I'm sure it is. It is Union Exhibit Number 14.

MR. LEWIS: Thank you, sir.

Q. (By Mr. Lewis) What is your occupation now, Mark? A. I'm still a plant utility man, sir.

• • •
 [574] Q. Do you remember taking a test for the instrument man job? A. Yes, sir, I do.

Q. Do you remember some of the parts of the test? A. Yes, sir, vaguely.

Q. Do you remember the vocabulary side of it, like a cross word puzzle test? A. Yes.

Q. Relating one word to another? A. Yes, sir.

Q. Did you feel this was relevant to the instrument man job? A. I don't want to sound facetious, but not really. I never thought it was relevant, no.

Q. That's all right. You're not sounding facetious. A. The only reason I say this, from what I can remember, the words just didn't seem to have any mechanical inclination or any technical inclination as far as I am concerned.

Q. How about the arithmetic side of it? Do you remember taking an arithmetic test? A. Yes, sir.

Q. And was that relevant, in your opinion? A. Well, I'm sure that math does play a part in the instrument man's job, sir, but that's quite elementary there.

Q. You mean addition, subtraction and multiplication? [575] A. I'd say that would be quite elementary. Like I say, I don't remember everything that was on the test.

Q. You wouldn't have any trouble with anything like that, would you? A. I would hope not, sir.

Q. You studied quite a bit of arithmetic, I take it? A. Well, in high school. I never had any college math, but if I couldn't do that, sir, I'd be quite embarrassed.

Q. Do you remember the mechanical comprehension parts of the test? A. Yes, sir.

Q. Did you find those to be trick questions or did you find them to be solid principles? A. Well, I've taken a lot of tests, and with the time allotted, it is a time-consuming thing and it does take thought. It's not something that you can—I'm sure they're designed that you're not supposed to get them off the top of your head, and I don't say I'm the smartest person in the world, but they're very vague. I don't really see what relevancy it had, but, you know—

Q. You thought it was vague, knowing the instrument job the way you know it? Is that what you are saying? A. You know, fail to see the correlation between that and the instrument job.

[576] Q. That's exactly the question. You know the instrument job to some extent because you see it around the plant all the time; is that right? A. Yes.

Q. And you work with them once in awhile, right? A. Yes, sir.

Q. And you now are answering a question on correlation, and you don't— A. I don't see any real comparison, no, sir.

Q. Do you remember what is called the Minnesota Paper Form Board Test, which is sort of a jig saw puzzle arrangement? A. Yes, sir.

Q. Is that relevant, in your opinion, to the instrument man job? A. Well, putting things together, you know, mechanically, basically.

Q. To the extent that you put things together here or in an instrument, you assemble. Is that the point you want to make? A. That's true, sir.

Q. It's got an assembly connotation? Is that the way to put it? A. Yes, sir.

• • •

[580]

BILLY WRIGHT

being first duly sworn, was examined and testified as follows:

[581]

DIRECT EXAMINATION

BY MR. LEWIS:

Q. You have given your name to the reporter, Mr. Wright? A. Yes, I have.

Q. For whom do you work? A. Detroit Edison.

Q. What is your occupation? A. Instrument man A.

Q. Which plant do you work in, sir? A. Monroe Power Plant.

Q. When did you hire into Detroit Edison Company? A. In May of 1968.

Q. At which location did you hire in? A. At the industrial plants.

Q. Which one was that? A. Well, Wyandotte North.

Q. You hired into Wyandotte Plant? A. That is correct.

Q. How long did you stay there? A year? A. No. I didn't come down to Monroe until January of '71.

Q. Three years? A. Approximately.

Q. What was your hiring-in job, sir? A. Instrument man A, T-15.

[582] Q. At Wyandotte? A. Yes.

Q. You were hired in directly as an instrument man A? A. That is correct.

Q. What was your previous trade before you came to Edison? A. Instrument man.

Q. Where did you work? A. Scott Paper.

Q. Were you given any tests when you went to work at Wyandotte? A. Yes, I was.

Q. Were they something similar to this battery test? A. Yes, they were.

* * *

[587] Q. I'm sure you are an expert on instrument work. Give us your opinion as to the relevance of the vocabulary test that was given here for the instrument job. A. Well, I'm not sure that's the one that was given.

Q. No. It's the system I'm talking about. I refer to it more or less facetiously as a cross word puzzle but really that's the way I look at it, because when I do the cross word puzzle, that's exactly what I try to do, figure out which word matches the other. A. Well, I'd say you should know the shadings and different meanings of words. It may well be an important test. I don't know. I'm not really able to tell.

Q. Yes. I wouldn't totally disregard it either. But does it mean a man should be fairly literate? Is that the word to use? [588] A. Yes.

Q. He's got to be able to read books, read papers, read catalogs? Is that the answer? A. Correct.

Q. But that doesn't mean he has to have a master's degree in the English language, does it? A. I wouldn't think so.

Q. Now, the arithmetic. As an expert instrument man how much arithmetic do you do? A. As I say, not as much here as I have, say, at Scott Paper. Normally when we went into a problem, the CV of a valve or something of that nature, we don't normally go through that. We turn it over to the engineers. However, in calculating—

Q. You used "CV".

MR. HOUGHTON. Excuse me. I don't think he was finished.

MR. LEWIS. I want to get that correctly.

THE WITNESS: The flow coefficients of a valve. However, in calibration work it's necessary to figure proportions to inches of water gallonage and flow and so forth. Good grocery store mathematics is very important there.

Q. (By Mr. Lewis) Grocery store mathematics? A. Well, figuring proportions, things of that nature.

Q. But do you have tables for certain things? [589] A. you can use a slide rule.

Q. Slide rule? A. Yes.

Q. Do you get into any trigonometry or geometry or anything like that? A. Not to a major extent at the present time, no. It's good to know, but I would say it would not really be essential to the job, no.

Q. You've got to be able to add? A. Yes.

Q. Subtract and multiply; is that correct? A. Yes.

Q. And you've got to be able to either read the slide rule or a square root or figure it out? A. That's right. The formulation is important in instrument work. Don't get me wrong. It really is.

Q. Right. But again are we talking about high school mathematics or college mathematics or what are we talking about? A. It depends how far they want the instrument man to progress in his trade. I mean he could go right up to

calculus, actually, to figure out the whole system yourself.

Q. But you are not required to? A. Not here, no.

Q. Now, the mechanical comprehension. Did you hear the [590] testimony about this portion of the EPSAT Test while you were here? A. Yes.

Q. What is your view on the principles enunciated in these questions and problems? A. Well, I think it's a learning thing. We're looking at physical ways of doing things and it would help if you did well, I think, on this test, yes.

Q. You mean the instruments themselves are shaped peculiarly? Is that what you are saying? A. No. The drive mechanisms are rather—you don't run into them ordinarily.

Q. The make-up or the architecture of the instrument is the unusual thing? A. No. The actual mechanical driven forces and how it is transmitted back and forth is unusual.

Q. How about the Minnesota Paper Form Board Test? How does that strike you as being relevant? I call it a jigsaw puzzle, but again I'm being facetious on this. A. I really don't know about that.

Q. That you don't know? A. I really have no estimate. I just can't estimate what—

Q. What that means? A. What that means, no.

* * *

[616]

REBUTTAL

LAWRENCE E. KANOUS

called as a witness in rebuttal was examined and testified as follows:

* * *

[617] Q. I believe we covered this earlier but I wanted to make sure. In view of the testimony that has been introduced, it is obvious that The Detroit Edison Company has developed test [618] batteries utilized for certain specific trade jobs and in other jobs it has not. What determination or consideration is given as to whether or not you are going

to use tests for entrance into certain jobs such as the instrument man job? A. In the first place, if you are going to use tests for particular jobs, they have to be validated, and we don't just capriciously bring up tests wherever they are and then start to apply them. The basis upon which tests become validated for specific jobs has to do with the kinds of things that I think I mentioned earlier.

Number one, those jobs that are critical to the company's business, whether they be critical in a technical sense, customer relations sense or whatever. That is one factor which would get a job considered for the development of validated test batteries.

The second one has to do with whether there is an aspect of employee safety or equipment safety involved in the job. Where that is a serious consideration, that gets high priority as well.

Then lastly, to be realistic, in order to be able to begin a validation study, you have to have the time, the personnel to carry it off, complete the work; you have to have the money to do it. You have to have the cooperation of the people. In the case of instrument men you have to [619] have the cooperation of the instrument men, instrument foremen, technical engineers and others in order to be able to pursue the study and be able to accomplish it.

I think those are the three factors which go to determine which jobs we were able to develop validated test batteries for. There are others that we haven't been able to get to or which don't have the same considerations at as high a level.

Q. I suppose some of these validation studies may take literally months of time. It's not something you do over-

night. A. The power plant operator battery took more than seven years.

Q. For example, the instrument man job, were there considerations of safety involved in that job at all, importance to equipment? A. Yes.

Q. How so? A. Well, as I think has been testified to here by the men doing the job and others of us that know the job, that job is of critical importance to the operation of the plant. If those jobs are not adequately performed, obviously the plant can't run.

Further, I think that there are some safety implications that relate to the instrument man's work. He can create situations which are extraordinarily [620] hazardous to other employees or the equipment that he's working on.

Q. Would I also be correct in saying, Mr. Kanous, that there are jobs that are quite important in the company, other journeyman type jobs, that we don't have test batteries for? A. That is correct.

Q. Merely because we don't have a test battery doesn't mean a job isn't important or vice versa? A. That is correct.

Q. There have been some allusions to a concept of retesting in some of these aptitude areas. There has been no evidence, at least that I am aware of, that any of these gentlemen requested retesting in this case, but is there a situation or are there circumstances under which you do retest people? A. There are.

Q. Particularly how would that work with respect to the instrument man job? A. Well, it would work with respect to the instrument man job the same as it would in any other situation where retests are concerned. We are specifically concerned that we have a good test, that the test be a fair measure of the employee's performance on whatever the test is and if in an individual case there are extenuating circumstances that lead us to believe that we might

not have good information, then retest [621] is appropriate, each case being considered on its merits.

Another case would be that in some cases where we use tests which measure proficiency as contrasted with aptitudes, we have some reason to believe that the employee has in fact done something to increase his proficiency in that area. He would be retested. Usually some specific period of time is required between the first taking of the test and the second taking of the test in most instances.

Q. Now, with respect to the testing program as such, you told us earlier that the Edison Company conducted a validation study and you reviewed that study for us in some detail. I have here a document that purports to be that study that I would like to introduce into evidence, and I will ask you if this is the validation study you have been testifying about. This is the one, I believe, that Mr. Roskind ultimately developed which led to the tests that were used in this case. A. Yes, this is the revalidation study.

MR. HOUGHTON: We would offer that as Company Exhibit 11.

(Company Exhibit 11 marked for identification)

MR. LEWIS: Well, if you are waiting for me to say yes or no as to the admission of this, I really don't know. [622] It's a lot of document to throw at me at this late hour.

MR. HOUGHTON: I would just indicate for the record we are not throwing it at Mr. Lewis at this late hour. This was provided to him and Mr. Johnson many weeks ago. It is the same document you have had for weeks.

THE ARBITRATOR: I believe it is pertinent to the case, Mr. Lewis. I don't know what weight it has, but I think it is pertinent. Therefore, I believe it should be accepted into evidence.

MR. LEWIS: Okay. Within the recognition that I can't examine all the contents too quickly, we can accept it, sure.

Q. (By Mr. Houghton) Mr. Kanous, with respect to the EPSAT Test, we had provided information to the Arbitrator and the union with respect to five of the six sections of the EPSAT Test and also with respect to the form board test. I have here a document that you gave me this morning that indicates samples of test items under the physical science comprehension section of the EPSAT Test, some 40 in number, which I will propose as Company Exhibit 12, and in doing so I will ask you if you can identify this and how this material was put together and why we didn't have it a little earlier. A. Yes. This is a set of questions, if you will, that I put together myself personally to be representative of the sorts [623] of items that are used in the EPSAT physical science comprehension section.

I make no claim for validity, reliability or anything else with respect to them. I did this on my own. There has been no test development research conducted on these at all.

Q. These then represent the range of the type of questions under that section? A. To the best of my judgment, yes.

Q. That is a series of statements as opposed to the other sections of the test we are familiar with. How does the test applicant work that test? Is it true or false? A. Yes. One of the exhibits, I think, shows the directions on a couple of sample items and indicates how one responds to this test. They are true and false. The applicant simply marks "T" and "F". That was one of the reasons why we could not find a sample test that, if I may use the term, exists in the public domain for this particular part of the EPSAT. This test having been built roughly 20 years ago, test makers these days do not usually use the true-false format, so we had great difficulty finding in the public domain in documents that one could purchase from the book store

or library things that really make this kind of a demonstration, so I had to build some myself.

[624] Q. You put that together last night and this morning? A. That is correct.

MR. HOUGHTON: We would offer it.

(Company Exhibit 12 marked for identification)

MR. LEWIS: Within the recognition that it is within the purview of what the company thinks the physical science comprehension section ought to be, it's all right with us. We are going to respond to it.

THE ARBITRATOR: All right. Company Exhibit 12 will be received into evidence.

Q. (By Mr. Houghton) Mr. Kanous, I would like to return briefly to the vocabulary section of the EPSAT Test which was under some discussion earlier in the case by several of the witnesses who examined the sample questions and evidenced concern apparently over whether or not those sample questions had any face validity.

Questions were raised as to really what you are seeking to test under that section of the examination. Are you seeking to test a man's knowledge of the English language or his linguistic ability, his aptitude or what? Can you explain that for us. A. We are seeking in that test to measure aptitude for linguistic kinds of things, the ability to develop the use of language, [625] the English language particularly, and not specifically to determine whether or not the applicant knows that word or not. We are really after the basic linguistic ability, which is an ability that is pretty well defined and has been used in many, many researches in many other predictive situations for pursuits which require high-level linguistic ability, the development thereof.

For example, in the academic world, there are a number of tests which are given to prospective college students which have two aspects to them, the quantitative ability and linguistic ability. ACE, ACT, PPSAT, the college entrance examination board test, many tests like this seek after the basic ability to learn to handle the language in a particular field. Really you are after the ability to use language rather than the language that is peculiar to the field in which the person is seeking to be trained or developed.

Q. So if I understand you then, in terms of levels of linguistic ability, you are saying certain trades, jobs, professions, whatever may require a certain level of linguistic ability and that is what you are seeking to measure? A. That is correct. And a person who exhibits, for example, high-level ability in this area, almost irrespective of the special pursuit—he might take law, he might take medicine, [626] he might take psychology, he might take whatever which has its own special language and so on; the test would be predictive of the ability to develop communication skills, verbal, written, in that language and the subtleties of the language.

Q. Is that true in the sense that you wouldn't, for example, be necessarily concerned with whether or not the person understood or knew the language of the profession at that point? A. That is correct. If a person had been successful, for example, in the physical sciences and had been able to develop the ability to communicate, read, talk about subtle nuances of the language for the physical sciences, I would fully expect that he would be able to develop similar talent in another field.

Q. The mixture of words that are actually used in the test then are designed to test this level of linguistic ability? A. That is correct.

Q. Recognizing that the man taking the test may not know all of the words? A. Correct.

Q. He may not have run across them? A. That is correct.

Q. Now, with respect to some of the learning that may be [627] involved in other job areas, I am interested in whether or not you had any experience along those lines, and particularly I am concerned with military type experience.

In the testimony there have been a couple of cases where men were involved with radar technician-type duties while in the military service, and I am wondering if you have run across that type of background and have an opinion as to whether or not that is indicative of success in certain job classifications or categories such as the instrument man. A. It may be, but not necessarily so. It may not be indicative of ability to perform at the level that is required of an instrument man.

I am the Director of Training for The Detroit Edison Company, and as such I try to keep track of what is going on, what sorts of things are being done with respect to selection and training in fields other than simply the utility area. I am also a reserve officer in the Air Force, and in that connection I've been assigned to the training research branch of the Aero Med Laboratory at Wright Field.

The military has a particular kind of a problem which relates to the fact that they have a great deal of turnover in all of their jobs, especially technical jobs, and as a consequence of the turnover that is involved at [628] great expense in the long-term training that has been required, the military has gone to a concept of designing equipment in the first instance such that skills, high-level abilities, long-term training are not as required as they might be under another design concept, and then they set up their organizations in such a way that the first level of maintenance, the field maintenance job, is in many instances

simply the removal of an intact module which can be identified as malfunctioning, and then based on whether or not it is a valuable piece of equipment—say some number, \$600 worth, \$500 worth; if it is less than that, they simply throw it away. If it is more than that, it is sent into a shop in which a different kind of a technician would in fact repair it, so that the field maintenance individual may in some instances be a parts replacement individual who uses special kind of test instrumentation which requires little or no interpretation of the instrumentation, simply good, marginal, not good; red, yellow, green, much like the tube tester that you would find in your local drug store to test tubes for your TV set. This is systematically done.

Now, if then an individual presents experience of that sort, that really doesn't tell you much about the sorts of things that he is able to do with respect to instrument work, for example.

[629] Q. In your opinion, would the test battery itself be a better predictor of those abilities? A. In my opinion, yes.

Q. With respect to the test itself and the scoring and cut-off point, there are just a couple of questions I wanted to run through you to make sure that we are clear, and one involves two concepts that we may have confused, predictability and validity. Would you distinguish those two for us, please. A. Validity simply talks to the point of whether or not a test is related to the performance of the job in question at some level. It tells you little or nothing about how well or how accurately you can predict within that. It is either valid or not at some point.

Now, in order to talk about the business of predictability you must do some additional work beyond the determination of sheer validity, and this is, for example, why the tests in the battery are a battery of tests and a weighted

battery of tests. This is such as to insure that as you attempt to make predictions from a man's battery score at some point on the scale, you have a reliable and reasonably valid prediction made.

Q. What you are looking for then is a test with validity and high predictability? [630] A. Accurate predictability.

Q. And are those criteria satisfied with respect to the instrument man B battery? A. I think they are, yes.

Q. Now, in scoring on the battery, we have established on the record, I believe, that the so-called cut-off point is 10.3. At one of the previous hearings the Arbitrator asked what is the upper limit and the lower limit in terms of total battery score, and you have provided me with information—correct me if I am wrong—that the upper limit for the battery score is 15.27 and the lower limit is 4.04. Is that correct? A. That is correct. This is the information I provided.

Q. Now I would like to run a couple of situations by you to make sure we understand how that scoring scheme works, and feel free to use the board if you want.

Assume that you have two batteries of tests or the same test, whatever. You have a cut-off point of 10.3. One of those tests has a top upper limit of 15, and say the other has a top upper limit of 500. What is the difference and how is that relevant to the selection process, if at all? A. Well, one of the problems that you have in testing is the fact that on one test the total number of items may be 25 and another one may have 500. You may have 500 items in the [631] test. Your problem is to be able to compare one test with another or to compare really the performance of an individual on both tests to determine if on both tests he is equally high or equally low or equally in the middle. That is a problem that is referred to as standardizing, or norming the test using a standard scale.

In The Detroit Edison Company we use a standard scale which has a mean of 10 and a standard deviation of 3, and

all tests are converted to that standard scale. If I can draw that on the board, it may be more helpful.

One finds if you study a lot of these tests that you have the range of scores on that axis from few items correct to many items correct. Then you plot on this axis the number of people who get that score. So we have number of persons.

When you do this, you find a distribution of scores that is typically found in many, many different processes, not only mental measurements, but other kinds of measurement. They tend to distribute themselves around a bell-shaped curve.

Now, if we have a test where the smallest number of items in all cases might be zero, and this might be 500, and you have another test where this is zero now and this is 25, one could make a considerable number of errors in placing [632] a person with respect to those two tests if you simply use raw scores, because perhaps in the case of the 25-item test, this point right here might be 20, and in the case of the 500-item test, this might be a number like 400. So if you said this individual got 400 on one test and 20 on the other, you might be misled into thinking he didn't do very well on the 20-item test.

So to solve that problem, persons involved in the development and utilization of testing have in fact created a scale where the arithmetic mean, the average, if you will, is some number, the average performance on the 500-item test, and the average on the 25-item test is called some specific number—and in the Edison Company's case it is called 10—and then you divide up the rest of the distribution in the area under the curve into segments and derive—this is then 7, 4, 1, 13. A score of 400 on your standardized scale would become 13, 16, 19. Then, of course, it never touches the base line in either direction.

So on the instrument test battery, the battery score is on this kind of a scale so that we can then compare the

performance of a person who takes that test battery with his similar performance on some other test battery and find out whether or not he is up here, in here, down there, where.

This is a very commonly used process. Most tests [633] like the ones I mentioned earlier, PSAT, army general classification tests, have this kind of a standard scale. Some scales are referred to as T-scales, but they are all standard scales.

Some have a mean of 100 and a standard deviation of 10. In our case we have a mean of 10 and a standard deviation of 3.

Q. Mr. Kanous, within the instrument man test battery the upper limit is 15.27. We have a cut-off point of 10.3. Assume hypothetically that upper limit were 100. Am I correct in saying, if I understand you, that the cut-off point well still might be 10.3? In other words, the cut-off point is not a function of the upper limit? A. That is correct. The cut-off point is an empirical demonstration of that point at which, according to the validation study, a group of individuals who are identified as being successful performers on the job is best discriminated from a group that are not successful performers on the job in its entirety. That is how the cutting score or critical score is determined. In some cases that score is quite a ways up the scale. In other cases it is quite a ways down the scale or maybe right in the middle. That is an empirical demonstration that arises from the validity study.

[634] In utilizing the results of this particular test battery within the company, as I understand it, the department is provided with information that indicates the man either received an "acceptable" or "not recommended"? A. "Acceptable" or "not recommended" on this battery currently.

Q. Assume hypothetically we have a man at 10, 11, 12, 13 and 14. For example, you do not give those five scores to the department, the department is looking for two men, and say the department would want to pick the men that were at 13 and 14. That practice, according to the testimony, isn't followed. Why? A. It is not followed and we do not provide those kinds of test scores to people making decisions in the department because if they have them, they have a very strong tendency in fact to utilize the test scores, you know, as you said, 12.5 against 11.5, and to do so would not be warranted from the data we have in the validation study. It would in fact be an arbitrary decision. Their cutting score might move anywhere as the case showed. That would not be appropriate. We do not give them those kinds of scores for that reason.

Q. The test would not support that type of analysis?
A. No, it would not.

Q. You are saying then, I guess, that within the framework of the test, as far as predicting success of a man on the job, [635] you don't differentiate between the man that scores 14 and the man that scores 10.5 or whatever? A. No, we do not.

MR. HOUGHTON: I believe that's all I have.

CROSS EXAMINATION

BY MR. LEWIS:

Q. First let me get to a series of questions that has been bothering me all through this thing and I haven't had any answers at all on them. The EPSAT Test was divided into six parts; is that correct, Mr. Kanous? A. Yes.

Q. That's mathematics, right? A. Yes.

Q. You call it formulation; is that right? A. That is correct.

Q. Is vocabulary another word for it? A. No, it's not.

Q. I'm sorry. Verbal comprehension is vocabulary? A. That's right.

Q. Physical science, right? A. Yes.

Q. Arithmetic reasoning, right? A. That is correct.

* * *

[636] Q. (By Mr. Lewis) Verbal comprehension. Is that right? Is that what you want to say? And mechanical comprehension. Have I given you six parts? A. In the validation study I think the parts are listed.

Q. This is in the record I'm talking about. A. Okay, whatever it is. I want to make sure that those are the terms. All right, I have it here.

Q. Six parts, right? A. Yes, six parts.

Q. These parts have different weights; is that right? A. No.

Q. They have equal weight? A. The EPSAT Test is scored as a total. The parts are not given differential weight.

Q. Tell me, does one right answer equal another right answer in a different section of the test? Do they all have the same value as far as the final grade is concerned? [637] A. I'm afraid I can't comment on that from memory. I can't comment on that because I think that each part of the test because of the nature of it—for example, in the test items which I have prepared which are true and false, the appropriate scoring formula for a true and false test would not be the same as one which has a multiple choice scoring formula, so I guess the answer, Mr. Lewis, is that they probably do not have equal weight, items from one part of the test to another part of the test. However, the score that enters into the battery is the total score on the EPSAT Test, not weighted parts.

Q. Let me add one more dimension. The Minnesota Paper Form Board test is another part, right? A. Yes, it is.

Q. Let me talk just theoretically and ignorantly. Do you get 5.2 for success on a Minnesota Paper Board Test and

5.2 for the EPSAT, making a 10.3 or 10.4 total? Is that the way you do it? A. They are added. The score achieved on the Minnesota Paper Form Board receives a particular weight—

Q. What is it? A. It may range from 3.6 to some other number.

Q. A maximum? A. I don't have the norms here. I can't give you that [638] information.

Q. Let me get back to what Mr. Houghton asked you. You said the best you could do in this battery is 15.27, right? A. That's right.

Q. How much of the 15.27 is represented in the Minnesota Paper Board Test? That's what I really want to know. A. I can't answer that question since I don't have a copy of the norm table here.

Q. How much of the 15.27 is represented by the mathematics in the EPSAT section? A. I can't answer that question.

Q. How much in the formulation? A. I can't answer that.

Q. The same answer would go if I kept asking you that? A. Yes, I would have to answer that in the same way to all the parts of the EPSAT Test. I don't have the norm table here.

Q. All right. Now, are you saying, Mr. Kanous, that Company Exhibit 12 is representative of the questions an apprentice or a beginner going into the instrument shop would or should know? A. This is the best I could do to create a set of test items which looked like those that are in the physical science comprehension portion of the test. This is the best job I could do both in terms of the kind of items that are here [639] and also in terms of the level of the items that are here, so I guess the answer to that then is affirmative, yes.

* * *

[659] THE ARBITRATOR: I hesitate to do this but I'm going to anyway. My industrial psychology is many, many years

behind and so are my statistics, but as I have been sitting here, I have been trying to relate these things to 20 years ago and what has been going on in this case.

If you take a 10.3 cut-off score, what is the confidence level of that? What can you predict from it?

THE WITNESS: If I recall the statistics in the earlier validation study, not this current one—I did not work with this one—I think that the confidence level was something of the order of 85 to 15.

THE ARBITRATOR: So this would mean that 85 percent would succeed that got a 10.3 and 15 would not?

[660] THE WITNESS: Might not, yes.

THE ARBITRATOR: And by the same token then, 15 who got lower than that would have succeeded?

THE WITNESS: That is correct. That's my recollection of the earlier study.

THE ARBITRATOR: If you were to move that down to 10.0, you would increase the number who would—

THE WITNESS: Tend to fail.

THE ARBITRATOR: Tend to fail it?

THE WITNESS: Correct.

THE ARBITRATOR: That is the only question I have.

MR. LEWIS: I forgot this one. These questions on the physical science comprehension are true or false?

THE WITNESS: You answer them either true or false.

MR. LEWIS: If I were lucky, I might be able to get 10 or 12 of them correct just by luck, then, I take it?

THE WITNESS: That is correct.

MR. LEWIS: Thank you.

THE ARBITRATOR: I have one other question too that I forgot to ask.

Is it possible for a man to completely fail, as we would put it in a classroom, one section of the EPSAT and [661] still come out?

THE WITNESS: And still come out above the cutting score?

THE ARBITRATOR: Yes.

THE WITNESS: I believe it is, yes. That's the best of my knowledge right now. I would have to look at data. I don't think we've ever experienced that sort of thing.

THE ARBITRATOR: Or be completely low in one area and high in other areas?

THE WITNESS: I don't think we have seen that particular thing where a man would just completely, as the students say, bottom out.

THE ARBITRATOR: I have to deal with College Board scores quite often, particularly for Ph.D. candidates when you do have a verbal score and quantitative score, and if you are going into the quantitative areas, we would look more closely at the quantitative, probably, than at the verbal.

THE WITNESS: Right.

THE ARBITRATOR: But going into the social sciences, you might look more at the verbal than the quantitative.

THE WITNESS: That's kind of a sore point. You might do that, yes.

THE ARBITRATOR: I guess what I am wondering about in this kind of a test is when you grade these, you are just [662] just taking the raw score and not looking at what might be the elements in the test. Is that right?

THE WITNESS: No. We would look at the elements of the test. We always look at the parts of the test because sometimes a performance on a particular kind of segment of any test might indicate that we have a bad testing situation; this person really didn't have an opportunity to do what he is capable of doing, and you then can find out that, for example, a person's native language might not be English and that might account for the peculiar thing and you would then not even perhaps score the test.

THE ARBITRATOR: How would you see that? How would you find that data?

THE WITNESS: Well, you would see it because this particular test has, for example, several different elements tapping different kinds of abilities, some based on verbal use of language and some not so heavily weighted in that direction, and you would see a pronounced difference which is completely out of character. It just doesn't fit.

This is what normally happens when given the test. A test is an overall look at engineering and physical science aptitudes. That is a rather closely-knit set, and if one of the tests were way off, one might then legitimately ask whether or not you had a good test overall.

[663] THE ARBITRATOR: One final question: Suppose that an individual is informed that he has not received an "acceptable" or "recommended" score. Is he allowed to take the test again at his request or not? Do you give it only once? Did I understand you correctly?

THE WITNESS: No, it would not be given only once. If there was a reason why the individual thought he should be retested, those reasons would be examined, discussed, and then some period of time after he had taken the test the first time, he would then be permitted to take the test again. And it is the company practice that if there is a higher score, the higher of the two tests stands.

THE ARBITRATOR: If my memory serves me correctly, in this instance you had 31 people who took the test, and out of those, seven received "recommended" scores.

THE WITNESS: I don't have that information.

THE ARBITRATOR: The question I am asking is this: Suppose that none of the people had received a "recommended" score. What would happen then?

THE WITNESS: I think then Mr. Locke would have a decision to make as to whether he wanted to post company-wide against department-wide.

If that were to happen under the terms that we're discussing here, the posting is supposed to be done in a [664] plant, and finding no candidates to meet the requirements, those several that were listed, it would then be posted department-wide. Finding no candidates acceptable at that point, we would go company-wide. And finding no candidates at that point, we would go then to the outside.

Q. (By Mr. Lewis) A new door was opened, this privilege of retesting which the Arbitrator posed to you.

What would be the point of taking the test over again if the complement of jobs already has been filled? A. In my experience I've had many employees who took tests and in their own judgment there was a reason why they felt that they should retake the test, and on discussing that matter with me, I came to the same kind of a conclusion as they had that there was legitimate reason why they ought to retake it.

Q. What do you do with it? Suppose he gets 15.0! So what? A. Then that would be between me and the man, I guess. This is his new performance. We wouldn't tell him, "You got 15.0." We would tell him if he had improved in that regard, "You now scored in the 'acceptable' category."

Q. What would he do? File that in his bureau at home? A. I don't know what he might do. I have no idea what he might then do with that. He might rebid on another occasion. There might be other avenues open to him. I don't know what they might be.

[665] Q. Well, I mean assuming that all the instrument jobs are spoken for and the complement is filled, what would be the point? That's my question.

MR. HOUGHTON: Didn't he answer it this way, Clem? If a man retakes a test, it is company policy to allow the higher of the two scores to be used toward future openings.

Q. (By Mr. Lewis) If there is no attrition from a particular job, what difference does it make? There is not much attrition in these instrument shops, is there? A. No. That's one of the problems. We have relatively few. I think, on the other hand, there is another kind of thing that has happened to individuals on that basis.

Some individuals have taken a test battery like for the instrument job in which there is—once you get the job, there is a considerable amount of training and education which is required. Some individuals having failed to pass have given up the idea of pursuing that sort of thing at all, any kind of training on their own.

Others who didn't make a good score at the first occasion have said, "I'd like to try it over." And we look at their reasoning and we find out there is merit in giving them the test again and they have then continued to pursue education, training on their own or under the company's educational assistance program. They have [666] continued to pursue their aspirations in that direction on the basis of that kind of a retest or re-evaluation.

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[685]

ROGER SPRAYBERRY

called as a witness in rebuttal was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS

Q. You have testified before, Mr. Sprayberry, haven't you? A. Yes.

Q. I want to show you what is marked as Company Exhibit 12. It is called "Test Items Similar to those Used in EPSAT Part III Physical Science Comprehension." Have you had a chance to look at that during the lunch hour and so forth? [686] A. I looked at it here in the room for a while, yes.

Q. In your opinion are those questions proper ones for an apprentice going into an instrument shop? A. My personal feelings are that a guy who has been in there awhile would be able to handle something like this much better than a new person. Before I went in the instrument shop I don't think I could have told you what a venturi was.

Q. When you went to the instrument shop, could you have answered all these? A. I don't think so.

Q. Do you think some of the grandfather incumbents could even answer some of these? A. I do not think that they could answer all of them correctly. You know, if you gave it to everyone who was an incumbent, I don't think they would all pass it.

Q. Of course you could get some of them by luck, couldn't you, yes and no, true and false? A. On true and false you can't get them all wrong, I wouldn't imagine.

Q. You would have to be unlucky, eh? A. Yes.

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[688]

BILLY WRIGHT

called as a witness in rebuttal was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. You have testified previously, Mr. Wright? A. Correct.

Q. I will show you what is known as Company Exhibit 12, and this is called "Test Items Similar to those Used in EPSAT Part III Physical Science Comprehension." Will you tell me if those subjects and questions are proper ones for an apprentice going into an instrument shop? A. I would hardly think so, no.

Q. Now, you are a real journeyman instrument man. You worked at instrument work even before you came to this company, right? A. Correct.

Q. Would some incumbents, even grandfathers, be baffled by some of these? A. I'd have trouble with the first one.

Q. You would have trouble yourself? A. Well, the question is: "The venturi measures pressure directly."

It's a flow measuring device. Yet you use pressure as a differential measurement on it. What kind of [689] answer do they want?

Q. You couldn't answer that? A. I wouldn't know what the question would be, really.

MR. LEWIS: Your witness.

MR. HOUGHTON: I suppose that is why you have to standardize the test and subject it to validity study to take out ambiguities like that.

THE WITNESS: I beg your pardon!

MR. HOUGHTON: That was a statement, not a question, I have no questions. Thank you.

(Witness excused)

MR. LEWIS: Mr. Malone.

FRED MALONE

called as a witness in rebuttal was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LEWIS:

Q. You have testified previously, haven't you, Mr. Malone? A. Yes.

Q. I'll show you what is marked Company 12. During the last hour or two have you had chance to look at this? A. I've glanced at it, yes.

Q. Do you think these are proper questions for an apprentice going into an instrument shop? [690] A. I'll have to agree with the other two witnesses that before I came into the instrument shop, I did not know what a venturi was. It was through my experience as an instrument man at the beginning rate that I found out what a venturi was.

Q. It doesn't only deal with venturis, though. It deals with stroboscopes and everything else. A. Number 14: "Anode in an electron tube . . ." Now, I didn't know anything about a tube at all until I helped build a Heathkit tube repair kit, and I got interested in this and I more or less made a study of my own about tubes and then I found out what this referred to. But at the time I came to the job, I wouldn't know anything about that.

Q. Does a fellow coming in the instrument shop for the first time know what a stroboscope is?

MR. HOUGHTON: How would he know that?

Q. (By Mr. Lewis) The average man? A. I would have to say that the average would not know.

Q. Well, in general do you think those are proper questions? A. I don't, no.

* * *

Respondent's Exhibit No. 11

AMERICAN ARBITRATION ASSOCIATION

REOPENED HEARING

In the Matter of the Arbitration Between
THE DETROIT EDISON COMPANY

and

UTILITY WORKERS UNION OF AMERICA, Local 223

Grievance No. PMO-123

Case Number 5430 0720 72

Proceedings had and testimony taken before a Board of Arbitration (Dallas L. Jones, Chairman; Raymond W. Schleicher, Company Member, and Douglas McIlroy, Union Member) at the Howard Johnson Motor Inn, Michigan Avenue at Washington Boulevard, Detroit, Michigan, on Thursday, July 18, 1974, commencing at 9:30 a.m.

APPEARANCES:

RALPH H. HOUGHTON, JR., Esq., Attorney, 1700 Guardian Building, Detroit, Michigan 48226
Appearing for the Company

CLEMENT J. LEWIS, Director of Services, UWUA-AFL-CIO,
815 16th Street, N.W., Washington, D.C. 20006

Appearing for the Union

* * *

[3] THE ARBITRATOR: This is a proceeding under the rules of the American Arbitration Association. This hearing is also a continuation of American Arbitration Case 5430 0720 72, Grievance PMO-123.

The parties have agreed as to the issue which is to be presented at this hearing, at least as the Arbitrator understands it at this moment, and the issue to be arbitrated is

as follows: whether The Detroit Edison Company has properly implemented the award in accordance with the opinion attached thereto. And this, of course, refers to this Arbitrator's award in the above-mentioned grievance.

Am I correct in that, gentlemen? Is that the issue which will be presented?

MR. HOUGHTON: Yes.

MR. LEWIS: Yes, that's right.

THE ARBITRATOR: How do you wish to proceed?

MR. LEWIS: I want to ask a few preliminary or procedural questions and maybe answer them myself.

* * *

[4] The third piece of unfinished business, as I see it, is this: I still have a charge against the employer pending at the National Labor Relations Board. I still want the tests. This case is apparently some kind of a hot potato. [5] It's been to Washington a few times for advice, they tell me, and back to the Detroit NLRB, and back to Washington and back to Detroit, and they were recently in touch with me and asked me if I would supply them with some more data and information, so I really don't know what is going to happen to my charge against the employer in which I seek actual disclosure of the tests, actual disclosure of each person's cut-off score, those who failed, those who didn't, how they relate to each other and so forth.

I did tell the Labor Board that I would treat any disclosure with complete confidentiality. I would not make a point of giving it out to the union so that the people in the future would know what kind of test they would be faced with going into one of these journeyman jobs. So there are various pieces of unfinished business in this case which I hope we can resolve.

* * *

[9] (By Mr. Houghton) In terms of that issue and what should or shouldn't be presented, it is our position the union has the burden of showing where the company has not complied with your opinion.

The opinion itself, if I can paraphrase it, said that with respect to employees who scored between 9.3 and 10.3, the Edison Company ought to take another careful look at their background, educational and otherwise, to determine whether there are any qualifications or abilities in their background that might offset their failure to attain a satisfactory score on the examination or test, and that we have done.

As you may recall from your earlier case, there were three employees who scored within this gray area, if I may call it that, 9.3 and 10.3. Their names were Mr. Pratt, Mr. Longton and Mr. Burger. The company conducted extensive interviews with these individuals, reviewed their backgrounds, educational and otherwise, and reached the decision that of those three persons, one person did have a background which might overcome his failure to attain an "acceptable" score on the test. That was Mr. Pratt. Accordingly, and based on your decision, after that analysis and after the conclusion was reached, the company did promote him into the instrument man classification.

* * *

[13] (By Mr. Lewis) Counsel says the opinion says those between 9.3 and 10.3 should be reviewed. I hate to keep harping on this, but I don't know who is between 9.3 and 10.3. I don't know who is 8. I don't know who is 7. I don't know who is 12. I don't know anything. I haven't been given the tests. I haven't been given the scores. I just don't know who is between 9.3 and 10.3.

I know that management asserts that three people were between 9.3 and 10.3, Pratt, Longton and Burger, but

that's just their own unilateral observation and decision, not mine. I don't really know whether there are more in that bracket or not. I have no way of knowing.

MR. HOUGHTON: With regard to whether there are more or not, a list was introduced at the earlier hearing giving the scores without names, and there are only three on that list. Those are everybody that took the test.

MR. LEWIS: Yes, but Ralph, it doesn't mean a thing to me, that list.

MR. HOUGHTON: It may not mean a thing to you, but you know there are only three persons in that range.

[14] MR. LEWIS: No, I don't. That's what you said.

THE ARBITRATOR: How would you go about doing more than this? Are you suggesting that the company may be less than truthful on this matter, Mr. Lewis?

MR. LEWIS: Well, I've been with this company for 20 years or more. It's not a case of whether I trust them or don't trust them. It's a case of business with me.

I know that from his side of the table—and I've known many of his supervisors for years, Franklin, Fischer and Ford; they would never let me make a statement that such is so. They'd say, "Prove it," you know. All I want them to do is prove it to me. So you give me the fact that employee A got 9, employee B got 8, employee C got 7. It doesn't mean a thing.

THE ARBITRATOR: What kind of proof do you wish, Mr. Lewis?

MR. LEWIS: I want the tests. I want the scores. I'm before the Labor Board on that question and I hope I'll win.

MR. HOUGHTON: If you had the tests, that wouldn't help you either because you wouldn't know how to score the tests. The tests don't tell you what a man got. We've had a witness testify that these are in fact the scores that the people received, and all you are saying if you don't believe that is that the witness lied.

[15] MR. LEWIS: Whether I believe it or not, I'm simply saying it is not good evidence, and you wouldn't accept it in court yourself.

MR. HOUGHTON: I sure would.

THE ARBITRATOR: Let me interject again that I believe as far as disclosure of the tests is concerned, that matter was resolved, at least for me, by the decision.

MR. LEWIS: You mean for your purposes it was.

THE ARBITRATOR: That is right.

MR. LEWIS: But see, there is a principle there.

THE ARBITRATOR: You are before the NLRB and I recognize that and I—

MR. LEWIS: Right, and I've got other companies in the United States where this is going to be a big item. You understand that.

THE ARBITRATOR: And they may agree or disagree with me on that question as to whether they should have been disclosed or not.

MR. LEWIS: It's not a case of agreeing with you or disagreeing with you. It's a case of whether we've got disclosure coming, under the Act. That's the way to put it. I have cases in Boston, Pittsburgh, Detroit and maybe one other place with the same argument, and none of them have been rejected yet. They are all in Washington.

[16] THE ARBITRATOR: Well, I think it's a difficult question.

MR. LEWIS: Right.

THE ARBITRATOR: At least I did a lot of work and study on that particular—

MR. LEWIS: You said from the Arbitrator's standpoint you couldn't subpoena them and you wouldn't under Michigan law.

THE ARBITRATOR: That is correct, and also some reasoning as to why I didn't believe that your case was injured by not having those tests, and you perhaps don't agree with me on that, and I think you don't.

MR. LEWIS: No, I don't, because we've got a whole new era, as you well know, of testing for promotions and Title 7 cases in the United States and it's going to loom big, this business of what is a proper test and what is not a proper test and whether it meets EEOC guidelines. You know, all this is coming in this decade and I think we are going to have tremendous casework on it, and I just had to get those cases in on those various NLRB boards and I have three.

THE ARBITRATOR: I am not suggesting that your actions might be incorrect or that you shouldn't have done it. All I am saying is that at this moment, before this Arbitrator, the matter of disclosure of the tests, this proceeding has been [17] resolved.

Now, I do believe—and perhaps I didn't thoroughly state that in the decision; I thought it was really clear, unambiguous and all else when I wrote it—that the union has a right to the test scores. Otherwise I do not see how they can police the contract.

MR. LEWIS: I don't either. But we didn't get them.

THE ARBITRATOR: You had some information, and perhaps I didn't get to that point clearly enough.

I certainly believe, Mr. Houghton, that the company has a duty to provide the union with the test scores, not the tests, but the test scores.

MR. HOUGHTON: As you will recall, we did go through that issue and expressed a very serious concern about confidentiality of placing names opposite scores.

THE ARBITRATOR: I realize that.

MR. HOUGHTON: We resolved that at the hearing in this fashion—and it was accepted at that time by the Arbitrator and the union: we would submit the lists of all the scores without names on them, and you will find that in the transcript.

MR. LEWIS: I didn't accept it. I said, "To expedite matters, if that's all you're going to do, let go. [18] There's no use staying here for six months."

Why would I be before the Labor Board if I accepted what you said?

MR. HOUGHTON: You are before the Labor Board to get the tests.

MR. LEWIS: And the scores. I'll read it.

MR. HOUGHTON: Be that as it may—maybe "accepted" isn't the right word. That issue as far as the company was concerned was resolved. There was certainly no mandate or directive in the opinion, unless I've missed it, that we at the conclusion turn over names along with the scores.

THE ARBITRATOR: I guess I fail to see how one can consider whether the award has been implemented without names attached to scores.

MR. HOUGHTON: Let's approach it in this fashion. You had a list of random scores. There were three scores on that list that were between 9.3 and 10.3, and as I understand your opinion, you were looking at those three scores and

saying those persons, whomever they may be, are entitled to be reviewed in more detail.

THE ARBITRATOR: That is correct, and that was one of the reasons why I could not say whether these qualifications met what, because I didn't know who was who.

MR. HOUGHTON: What we have done is we have [19] taken taken the three scores, determined to whom they belonged, and reviewed those three people. Now, as I understand Mr. Lewis' objection, if we face it objectively, what he is saying is, "How do I really know that the company took those three scores and they are actually the scores of Longton, Pratt and Burger? They may be the scores of Jones and Houghton."

We can give you those three scores. We can get a piece of paper and put 9.3 and put the three names there, or 9.4 or 9.7 or whatever they happen to be, but if we put a person on the stand who is in charge and says, "I took the scores and these are the persons," testifies under oath that those are the persons, I think that is certainly sufficient proof, and beyond that point I don't think there is really any serious question on this. I don't think Mr. Lewis is really saying the company intentionally substituted one person for another.

MR. LEWIS: No. I'm talking about good evidence, which you guys taught me over the years. Good evidence is good evidence.

MR. HOUGHTON: That's sufficiently good evidence.

MR. LEWIS: No, it isn't.

THE ARBITRATOR: I think I would agree with that, Mr. Houghton. If we could have the Detroit Edison employee who is responsible for that activity testify that these names do go [20] with those scores, then I will have to accept that as reliable evidence.

MR. LEWIS: As the Arbitrator.

THE ARBITRATOR: As the Arbitrator.

MR. LEWIS: No question, but the Labor Board don't, nor do I, you know, in connection with my principle that tests and scores should be disclosed to the union so that they can properly police and implement their contract. That's the generalized subject I'm at there. Not before you; it's a generalized subject I need for Boston, Pittsburgh and Detroit as well as other places.

THE ARBITRATOR: I understand your case before them.

MR. HOUGHTON: Aren't you really interested in pursuing the basic principle that you are entitled to all the scores, which you are after in the NLRB, as opposed to saying the company intentionally substituted one name for another? You are not saying that, are you?

MR. LEWIS: I really don't know. It just isn't good evidence to me for somebody to hand us a sheet and say, "Here, three guys got 10, four guys got 9, three guys got 8." It just doesn't do anything for me. As Leo Franklin, your supervisor, would say, it just isn't good evidence. I'm sure you couldn't give it to Judge Keith that way. He'd say, [21] "Wait a minute, let me see them."

MR. HOUGHTON: Do you want to bet?

MR. LEWIS: Yes, I'll bet. But anyway, that's beside the point.

MR. HOUGHTON: I guess my point is I think you can properly preserve your position and argue that you want test scores in the NLRB case without affecting what is going on here, and if you have any doubt—

MR. LEWIS: The professor has already said that—

MR. HOUGHTON: Excuse me. Let me finish. If you have any doubt as to whether these are the three correct persons, I'll be glad to put someone on the stand to verify that.

MR. LEWIS: The professor has already said that from his standpoint, to get the arbitration over with, he is not going to subpoena the tests; he can't do it under Michigan law and he thinks he can do the job without the actual tests and scoring.

I think that's what you said; is that right, sir?

THE ARBITRATOR: I'm saying I could find no relevant cases which gave to me the power under Michigan law. One could argue you might under national law.

[22] But I also came to a simultaneous conclusion, Mr. Lewis, which I think I expressed there, that I did not believe that the test itself would further your case. Now, that's my opinion.

MR. LEWIS: I appreciate that.

THE ARBITRATOR: Therefore, that issue, as far as I am concerned, the test itself has been resolved.

MR. LEWIS: But the scores would have.

THE ARBITRATOR: But the scores, I think, you are entitled to. If someone is to find out whether the award has been implemented, then this is necessary information.

* * *

[32] WILLIAM L. ROSKIND
was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HOUGHTON

[33] Q. Your full name, for the record? A. William L. Roskind.

Q. What is your position with the Edison company? A. I'm the acting director of Industrial Psychology.

Q. How long have you held that position? A. Since July 1.

Q. Of this year? A. Yes.

Q. Prior to that time what was your position? A. I was the administrator of the Psychological Services at Detroit Edison Company.

Q. Are you the same Mr. Roskind that testified in the previous hearings in this case? A. Yes, I am.

Q. You are familiar with the grievance and the problem involved? A. Yes, I am.

Q. Have you, by the way, had in your possession and reviewed a copy of Arbitrator Jones' decision in this case? A. Yes, I have reviewed it.

Q. Pursuant to that decision I will ask you specifically what you did in determining which employees who were involved in this case and who took the test fell between 9.3 and 10.3. How did you go about determining who they were? [34] A. We had a list of, I think, 10 grievants, if I recall correctly, and I had the personnel test record card pulled for all 10 employees and checked—

Q. Let me interrupt you for just a second. What is that card that you are referring to? Where is that kept and what does it contain or what is its purpose? A. The card is our record of test performance for employees. Each employee and applicant for employment at the company who has taken a test to be used for selection purposes has a card filled out with their name and ID number on it and the list of tests and the batteries of tests that they have taken, the date and the scores.

Q. This is the basic original card of entry where the company keeps records of this sort? A. That is correct.

Q. Continue, please. A. I reviewed the 10 cards and discovered the three individuals who scored between 9.3 and 10.3. That information was relayed to the Union

Relations Department. In a meeting it was given to the Production Department.

Q. Do each of these cards have an employee's name on them? A. Yes.

Q. So if you found a card, for example, with 9.5, you would then take that employee's name off the card and submit [35] that? A. That's correct.

Q. In reviewing those 10 cards, how many did you find that fell between 9.3 and 10.3? A. There were three individuals who had a score between 9.3 and 10.3.

Q. Did you distribute those three names then to the Union Relations Department? A. That is correct.

Q. Mr. Roskind, the three names that we are stating are involved are a Richard Burger, Michael J. Pratt and Gary D. Longton. Are those the three names that you submitted? A. Yes, they are.

Q. And are those the three persons who had scored between 9.3 and 10.3? A. That's correct.

Q. Were there any others? A. No, there were not.

* * *

[50] THE ARBITRATOR: May I ask just one or two.

Mr. Roskind, when these scores were recorded, what kind of care procedure do you use in making certain there are no errors? I guess that's one point which bothers me a [51] little bit.

THE WITNESS: The people that make up these records are very conscientious and very careful. In the event there is any question, we have the actual test itself for one year after a testing situation. And the record exists in two different places, once in a card file and again on a computer input sheet in a coded form, and checks are made to see that these people are doing the job properly. It is a job that they feel very, very conscientious about doing.

* * *

Respondent's Exhibit No. 13

Report XLV

Study of Selection Tests for Instrumentmen in the Power Plants

August 1970

**Personnel Research
Employee Relations Department
The Detroit Edison Company**

Summary

The selection tests used for instrumentmen in the power plants were revalidated.

The criterion consisted of supervisors' judgments of the kind of assistance which an instrumentman would need to perform each of 23 selected job tasks.

Complete test data and satisfactory criteria were available for 33 instrumentmen.

The tests were highly related to the criterion of job performance. A standard could be set which would provide a reliable factor in the selection of new instrumentmen.

Introduction

When we were doing research in the 1950's to help with selection, induction, training, and evaluation for operators in the power plants, Mr. Floyd Goulait, the Instrumentman Technician for the Production Department, insisted on the inclusion of instrumentmen in the research. He emphasized the importance of instrument work to the operation of the power plants and believed that the qualifications of men going into this work should be carefully studied. Instrumentmen entered this job primarily from the operating jobs. This practice of promotion from within was regarded

as a desirable practice, but it seemed evident that not all good operators were making good instrumentmen.

A task analysis of the instrumentman's job was made with the same method (critical incidents) being used in the study of the operating jobs. A battery of selection tests was constructed and tried out on a few men bidding into the instrumentman's jobs within one of the new plants. Tentative standards were set which have been used for about ten years.

Recently, the technical engineers of the power plants recognized the need for some improvement in the selection test battery. In the newer plants, more complex instrumentation and controls are being used. Nuclear plants may have additional complexity. More electronic instrumentation is being introduced.

It is recognized that selection standards need to be fair for all employe bidding into instrumentman's jobs. At the same time, selection standards need to be adequate for the development of the knowledge and skills which will be needed in an advancing technology.

Sample

Since about 1960 the tentative selection battery has been given to a number of our employes, some of whom have entered instrumentman's jobs. It appeared that enough employes had had some experience in this work who also had been given the selection test battery so that sufficient data for a study could be secured without additional testing.

A list of names for employes who had taken the instrumentman selection tests was compared with men who had entered the instrumentman's job and could be evaluated on their job performance at the time of this study. Forty-three such cases were identified. Criteria of job performance were secured for them.

Criterion

The criterion of job performance used in this study consists of ratings of a man's ability to do certain job tasks which were selected to be representative of the job as a whole in range and difficulty. The technical engineers selected 23 job tasks grouped in five categories from least to most complex. A list of these job tasks is included in the appendix.

There were 18 technical engineers and supervisors (evaluators) who had some knowledge about some of the 43 men of the sample. For each of these evaluators a set of rating material was prepared. The rating material consisted of directions and 23 sheets, each of which defined one of the 23 job tasks together with the names of the instrumentmen about which the evaluator had some knowledge.

Each evaluator was asked to mark for each instrumentman on a given job task whether the instrumentman could perform this task:

1. without assistance,
2. with *minor* assistance, such as from direction he could secure over the telephone,
3. with *major* assistance of a more competent or knowledgeable person working with him on the job site.

Provision was made for situations in which the evaluator was not able to rate the man on a given job task, and also for any comments which might help to understand the ratings provided.

For each instrumentman of the sample, a summation was made of the difficulty level (one through five) multiplied by the ratings of the nature of assistance needed (one through three) across all job tasks marked for this instrumentman. This summation was divided by the number of

tasks on which he was marked. This provided a single index of ability to perform the selected instrumentman tasks.

Within the sample there was a wide range of experience in instrument work from a few months to many years. Accordingly, the sample was divided into four groups:

1. less than one year,
2. one to two years,
3. three to seven years,
4. eight years or more.

The index described above was standardized within each of these four groups. This served to minimize differences in amount of experience among the men of the sample. Most of the instrumentmen were rated by more than one evaluator. The median of the standardized scores was used as a criterion for this study.

Results

1. Criterion

There were some cases on which evaluators were in considerable disagreement, most of whom had less than two years of experience. Ten of the 43 cases were eliminated from further analysis, seven with two years of experience or less, one with three years, one with four years, and one with twenty years. This left 33 cases with complete test data and a satisfactory criterion of their job performance.¹

¹ While it is undesirable from a purely statistical standpoint to remove cases, from a practical standpoint it is difficult to tell how successful a man is on the job when one evaluator rates him very high and another rates him very low. It was originally intended to include only those with more than two years of experience, but the sample was so small, it was important to secure as much data as possible.

2. Test Results

The tests in this battery consist of three tests, one of which has six parts. Each of the tests and each of the parts of tests were correlated with the criterion as described above. These correlations are shown in the appendix. Using scores for the two tests and the six-part scores of the third test, the multiple correlation with the criterion was .76 ($F=4.02$). Using the total score for the three tests, the multiple correlation with the criterion was .73 ($F=11.00$).

One of these three tests was acting as a suppressor. On graphical analysis, it was found that this test was adding to the predictive value of the battery only at the low end of scores. In this situation where instrumentmen are selected primarily from operating personnel of the power plants, it does not seem necessary to include this third test. Using the two remaining tests, the multiple correlation with the criterion was .71 ($F=15.25$). From the standpoint of stability in applying this test battery to new men, it was decided to construct the test battery using only these two tests.

The results of the proposed test battery may be shown graphically as in the accompanying chart. The sample was divided into two groups, those rated below average and those rated above average. The middle case was assigned by tossing a coin. It can be observed that the test battery shows marked discrimination between those who are rated high in job performance and those who are rated low. Furthermore, a satisfactory standard could be set within a rather wide range, depending on

For this reason, ratings were secured for the complete sample, even those who had less than six months of experience in this work. Ratings with differences of more than $1\frac{1}{3}$ standard deviations were considered too big a difference for inclusion in the sample.

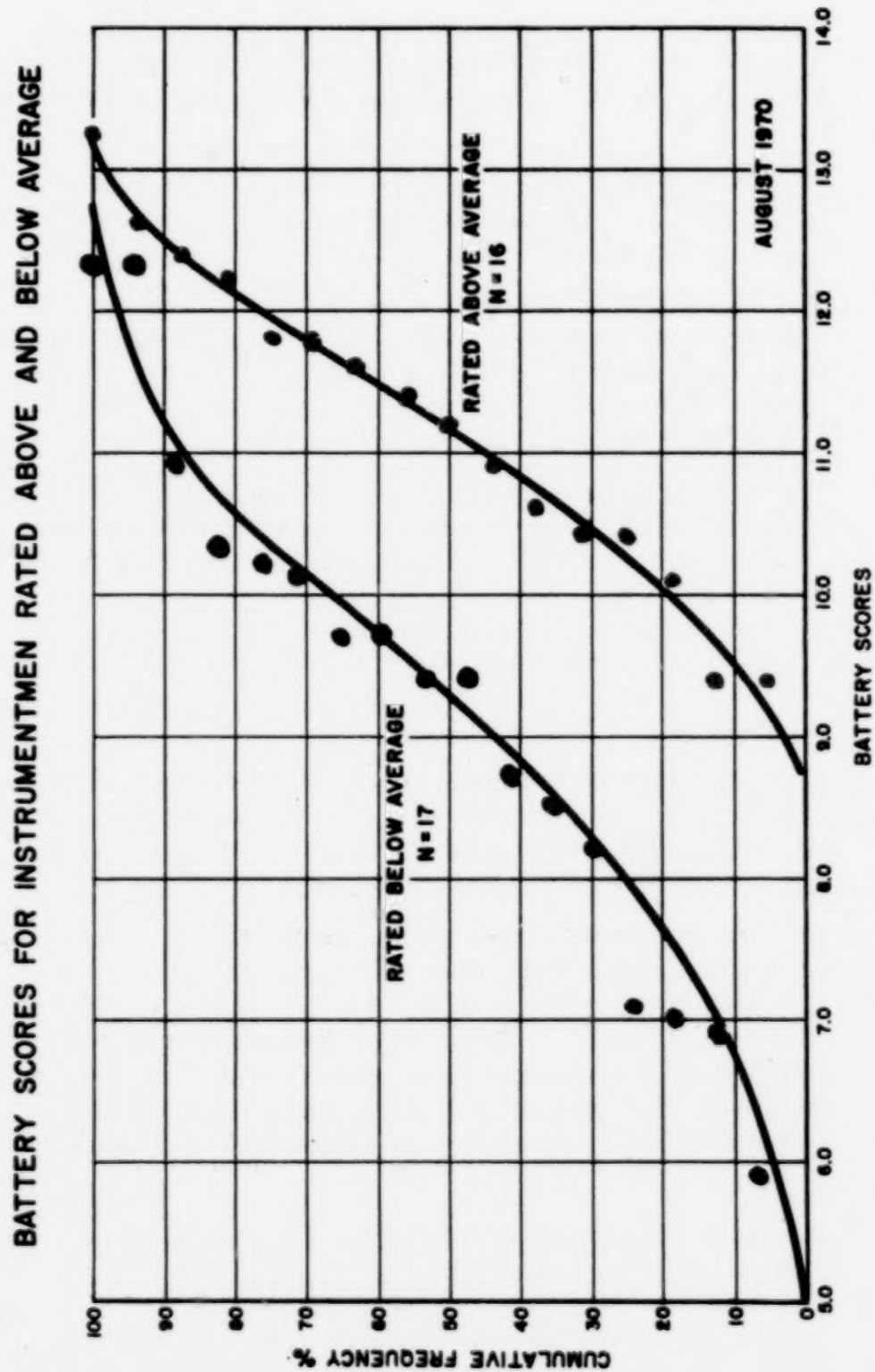
the needs of the department and the population from which selections are made.

3. Electronic Instruments

With the introduction of more electronic instrumentation, it seemed desirable to make some attempt to project the results of the present study for future installations. At present, research designed specifically in this area probably would not be possible because of the number of instrumentmen who have had exclusive experience with this kind of equipment. However, an attempt was made to try to secure some kind of approximation of the direction which qualifications probably would take.

An assumption was made that changes and qualifications would be in the direction of:

1. more analysis and/or understanding of conditions which must be inferred, rather than observed with the senses,
2. more manipulation of concepts as opposed to objects.



It appeared that some of the 23 tasks which are described above might have more of the above content. Accordingly, the technical engineers provided a second rating of the 23 tasks on the basis of the above assumption.

The correlations between the ratings on this assumption with the ratings previously supplied on the basis of complexity was .95.

It seems that the best interpretation which can be made from the data at hand is that most instrumentmen who are capable within the present system are likely to be those capable within systems with more electronic instrumentation.

A more definitive study should be conducted sometime in the future as more instrumentmen have experience with more electronic instruments. In the meantime it seems that the selection requirements will not be badly out of line with the requirements of the job within the immediate years ahead.

Conclusions

The test battery developed in this study showed a high relationship to performance on the job. Standards can be set on this test battery and used as a reliable factor in future selections of instrumentmen.

Obviously, other factors than the test battery are important in the selection process. The test battery consists of a measure of ability to do the tasks selected to be representative of this job. There are other qualifications for satisfactory performance than sheer ability to perform these tasks. The present study demonstrates that one factor in selection may be a standard on the test battery developed.

Appendix

CORRELATIONS OF TESTS WITH CRITERION AND INTERCORRELATIONS

	(N=33)									
	1	2	3	4	5	6	7	8	9	10
1. Criterion		.33	.47	.65	.50	.32	.53	.39	.42	.62
2. Personnel	.33		.26	.67	.48	.39	.48	.24	.59	.54
3. M.P.F.B.	.47	.26		.32	.33	.05	.08	.35	.22	.52
E.P.S.A.T.										
4. Total*	.65	.67	.32							
5. Mathematics	.50	.48	.33				.34	.25	.31	.29
6. Formulation	.32	.39	.05				.34	.37	.32	.34
7. Phys. Sci. Comp.	.53	.48	.08				.25	.37	.30	.63
8. Arith. Reasoning	.39	.24	.35				.31	.32	.30	.12
9. Verbal Comp.	.42	.59	.22				.29	.34	.63	.12
10. Mechanical Comp.	.62	.54	.52				.43	.46	.62	.45
Mean	10.2	26.8	42.2	72.7	9.3	3.8	19.2	4.6	19.5	16.3
Standard Deviation	2.5	5.0	7.7	23.8	5.1	2.2	8.7	2.9	9.3	4.1

* The total score on the E.P.S.A.T. was not correlated with its parts.

**Listing of Job Tasks Selected to be Representative
of the Instrumentman's Job in Range and Difficulty**

Pressure Measuring Instruments:

1. Install mechanism and calibrate a Bourdon tube pressure guage.
2. Install a new diaphragm and calibrate a draft gauge.

Temperature Measuring Instruments:

3. Troubleshoot a grounded thermocouple wire in a multi-thermocouple measuring system.
4. Troubleshoot erratically-printing multi-point temperature recorder.

Level Measuring Instruments:

5. Calibrate a drum level recorder.
6. Troubleshoot erroneously-reading condensate storage water level indicator or recorder.

Flow Measuring Instruments:

7. Calibrate a differential pressure water flow meter.
8. Calibrate a boiler air flow meter.
9. Troubleshoot an obvious low reading on a steam flow meter.

Alarms and Trips:

10. Troubleshoot a malfunctioning furnace flame-sensing system.
11. Install a pressure switch completely.

Plant Water Practices:

12. Properly take a good water sample.

13. Trouble chlorinator malfunction when chlorinator is not chlorinating.

Miscellaneous:

14. Troubleshoot control air dryer malfunction.
15. Use Instrument Shop filing system properly.

Control System and Components:

16. Overhaul and recalibrate a pneumatic signal transmitter.
17. Calibrate a pneumatic controller in the Instrument Shop.
18. Overhaul a valve positioner and restroke the valve properly.
19. Characterize the drive on a damper.
20. Troubleshoot a complete control system for malfunctioning automatic control. System has a minimum of two proportional and one reset actions.
21. Retune a marginally-working automatic control system which has a minimum of four proportional, two reset, and one rate actions.
22. Troubleshoot a non-transferable soot blower control system.
23. Set up the boiler feed pump recirculation control system with newly-installed instruments and controls.

Respondent's Exhibit No. 14**JOB CLASSIFICATION 1****INSTRUMENT MAN****A Supplement To****Revalidation Research on Employment Selection Tests:****THE DETROIT EDISON COMPANY**

Submitted

December 6, 1972

By

NATIONAL COMPLIANCE COMPANY

Dallas, Texas

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JOB CLASSIFICATION 1
INSTRUMENT MAN

Introduction. When NCC prepared previous research for The Detroit Edison Company, there was not an adequate sample of Instrument Men to arrive at any justifiable conclusions. Only 4 men who were selected for this classification during the period 1967-70, inclusive, were still on the job. In order to inquire into the validity of the Instrument Man battery, we decided to collect data on men who were hired before 1967. What follows is a report of that validation study.

Job description. Instrument Man is a job classification found in the Production Department. An employee in this category installs, maintains, repairs, calibrates, tests, and adjusts precision instruments in the power plants. There is a normal line of progression in this job from Instrument Man Third Class to Instrument Man First Class.

Although the Instrument Men are, as their job title indicates, ostensibly concerned with all manner of control instruments, they have other responsibilities as well. They instruct operators and maintenance men in the use and functions of instruments and controls. Instrument Men are also concerned with boiler water analysis and treatment, including checks for oxygen content, conductance, and acidity of condensate and boiler feed water. They frequently handle chemicals such as sulphuric and hydrochloric acid, caustic soda, ammonia, and chlorine. They may assist in any tests requested by Technical Engineers or engineering staff and they are responsible for training, assigning, and directing the work of lower rated Instrument Men.

Typical duties of Instrument Men include working with the entire array of gauges, meters, recording devices, and so forth that are found in power plants. They are also responsible for the installation, calibration, maintenance, and operation of automatic control systems which control

boilers and their associated equipment. In addition, they are responsible for the maintenance of both mechanical and electrical tripping and alarm devices. These may include pressure devices, temperature devices, storage level indicators, and miscellaneous alarm devices such as high wind velocity, crane gantry locks and leakage alarms for smoke and other kinds of fumes. In order to prevent scale formation in boiler tubes, oxygen corrosion, contamination of the condensate system, and slime forming in cooling systems, it is necessary to maintain close control over water quality. In their work they use a wide range of hand tools from jewelers' tools needed in the repair of small clock and control mechanisms to wrenches of all sizes and types, from minute to very large. They are accustomed to working to very close tolerances under tedious conditions. They occasionally act as guides in escorting civic groups through the power plants and are frequently called upon to read and work from mechanical and electrical blueprints and schematic drawings and from wiring diagrams. Mathematics is required as they use charts, curves, tables, graphs, and square root and percentage calculations in their daily instrument calibration. In summary, the duties of the job require both technical know-how and a diligent application to the work.

Job analysis has revealed that the physical skills required of an Instrument Man involve considerable hand-eye coordination and extremely accurate touch in adjusting, calibrating, and repair of delicate instruments. Physical effort required on the job is great. Frequent stooping, bending, crawling, climbing, and standing while making repairs on instruments are encountered. No specialized education is required for entry into the Instrument Man progression; however, the incumbent must acquire background electrical knowledge equal to six months of full-time schooling. He may accomplish this by passing the department's basic electrical course or demonstrate this by passing a department examination. Fairly frequent opportunity to cause

extremely serious operating conditions from misjudgment or erroneous action exists. Instrument Men are often exposed to hazards as well as adverse working conditions. Instrument Men are responsible for seeing that safety rules and practices are properly observed. They have to be mindful of hazards to others while performing their work. Although established maintenance procedures are used, Instrument Men frequently must use their own initiative in how to repair and calibrate under unforeseen conditions and carry jobs through to completion. Their work is spot-checked occasionally, mostly by the level of results. They regularly work alone or with a helper. Thus, Instrument Man is a demanding job both in terms of electrical knowledge and physical effort.

Review of studies. During the mid-50s when research was being conducted on the selection, training, and evaluation of operators in the power plants, the Production Department requested that Instrument Men be included in the research. Instrument Men enter the job primarily from the operating jobs. The practice of promotion from within was regarded as a desirable practice, but it seemed evident that not all good operators were making good Instrument Men. A task analysis of the Instrument Man job was made using the critical incident method. A battery of selection tests was constructed and tried out on men bidding into the Instrument Men jobs.

In 1970, the Technical Engineers of the power plants recognized the need for improvement in the selection of Instrument Men. In the newer plants more complex instrumentation and more electronic controls are used. Nuclear plants have even additional control complexity.

In August, 1970, the Personnel Research Section of the Employee Relations Department of DECo published a document on the validation of the selection battery for Instrument Men. They were able to identify 43 men who

were Instrument Men incumbents who had taken the selection battery. Criteria of job performance were secured for these men.

The criterion selected was a most ingenious one. Job performance was measured by ratings of a man's ability to do certain job tasks which were selected to be representative of the job as a whole in range of complexity and difficulty. Technical Engineers selected 23 job tasks which were grouped into 5 categories from least to most complex. Evaluations were secured for each Instrument Man from as many supervisors who were sufficiently familiar with his work. Evaluators were asked to rate each Instrument Man on a given job task depending on whether the incumbent could perform that task without assistance, with minor assistance, or with major assistance. Provisions were made for situations in which the evaluator was not able to rate the man on a given job task. The criterion measure was scored by summing the product of the difficulty level multiplied by rating of the nature of assistance needed across all job tasks. This summation was divided by the number of tasks on which an individual was marked. This provided a single index of ability to perform the selected Instrument Men tasks.

Within the sample experience in instrument work ranged from a few months to many years. The sample was divided into 4 groups on length of experience: those who had been on the job less than one year, those with one to two years experience, from three to seven years, or eight years or more. The single summary index described above was standardized within each of the 4 groups. There remained 33 cases with complete test data and satisfactory criterion scores.

The results of the study showed that the selection battery was working quite well. The tests in the battery included the Personnel Test, the Minnesota Paper Form Board, and the Engineering and Physical Sciences Aptitude Test. Each

of the tests and its subsections were correlated with the criterion described above. Using the total score for the three tests, the multiple correlation obtained was .73 ($F = 11.00$). These results are, of course, highly statistically significant.

In that previous report some speculation as to the directions which qualifications of future Instrument Men would take was made. With the advent and installation of increasing amounts of electronic instrumentation, it was determined that in the future Instrument Men would need to have qualifications which would allow them to make inferences regarding analysis and/or understanding of conditions which could be inferred rather than observed with the senses. It was forecast that future Instrument Men would be more frequently manipulating concepts as opposed to objects.

Predictors. As indicated directly above, three tests are administered in the selection battery for Instrument Men. The three tests in this battery are:

Personnel Test

Minnesota Paper Form Board

Engineering and Physical Sciences Aptitude Test

Descriptions of these tests can be found in Appendix A. The predictor variables were summarized in two ways. First, multiple regression resultants were calculated for each individual Instrument Man using the beta weights obtained in the previous research. Also, a unit weighting scheme was applied which is referred to here as Sum of Standard Scores. This summary predictor variable was obtained by calculating the sum of the standard scores across all tests in the battery. This is a simple statistical technique which adjusts for the average score and the dispersion on each test. It allows the addition of an individual

score on one test to scores on others until a grand sum is reached.

Performance rating scales. A performance rating scale was not designed by NCC for this job classification. After our discussions with Detroit Edison personnel, we determined that the Instrument Man rating scale which had been previously used would be entirely appropriate. We took the listing of job tasks selected to be representative of the Instrument Man's job in range of complexity and difficulty and looked at how they ranged from simple to most complex. Beginning with the 23 tasks, we discovered that there were 9 tasks at the two highest levels of difficulty. Rating scales reflecting the remaining 14 tasks of a lower difficulty level were printed since we did not plan to evaluate men with more than 5 years experience. Only later was it discovered that there would not be a sufficient number of Instrument Men hired during the years 1967-70 to make an adequate sample. Thus, in this research, an abbreviated Instrument Man rating scale (see Appendix B) was administered to all Instrument Men working in the DECo system who had received the Instrument Men test battery.

The performance rating scale was scored in a fashion highly similar to that in the previous work performed by Detroit Edison. A summary was made across all 14 items of the cross-product between the item difficulty (1-3) times the evaluator's judgment of whether the incumbent could perform the particular task with major assistance, minor assistance, or with assistance (1-3). Thus, a total of 9 points was possible for each item times the 14 items, giving the highest total possible as 126 points. The highest rating score obtained by any individual was 102 points and the lowest was 59 points (see Appendix C). This gave us confidence that even with eliminating the nine most difficult items, the rating scale did an effective job of estimating the range of performance of persons evaluated on the rating scale.

In order to be able to make better comparison with the previous study, we also made an adjustment to the total rating score. This adjustment was made by dividing the persons into 4 groups on the basis of their work experience as follows: less than one year, one or two years, three to eight years, more than eight years. This adjustment on the total rating score provided a criterion which would be roughly comparable for men with differences in length of experience.

Sample. The sample of Instrument Men is not large but is sufficient that we can have confidence in the results. There were a total of 35 men who had taken the Instrument Man selection battery described above who were still working with the company in June, 1972. Performance rating scales were obtained on all 35 of these men. A tabular description of the sample can be found in Table 1. All of the subjects

were males. There were no minority group members in the sample.

TABLE 1.

SAMPLE DESCRIPTION FOR
INSTRUMENT MAN

AGE AND EDUCATION LEVEL			
	Number	Mean	S.D.
Current Age	35	43.33	7.872
Education Level at Testing	35	11.50	1.011
Years of Experience as of 1972	35	6.68	6.569

Results. Correlation analysis revealed that the test battery taken as a whole is statistically significantly related to the job performance summary measures. The sum of the standard scores on the three tests in the battery was statistically significantly related to both the unadjusted total

rating score and the adjusted total rating score (see Table 2). Similarly, the multiple regression resultant on the two tests which DECo is now using in selection was statistically

TABLE 2.

CORRELATIONS OF SUMMARY PREDICTOR VARIABLES WITH SUMMARY PERFORMANCE VARIABLES ($N = 35$)

Test Battery Variables	Performance Variables	
	Unadjusted Total Rating Score	Adjusted Total Rating Score
Sum of Standard Scores (three tests)	.338	.412
Multiple Regression Resultant (two tests)	.410	.407

Note-. With $df = 33$, r necessary to reject at .01 level, one-tailed test is .392; r necessary to reject at .05 level, one-tailed test is .283.

significantly related to both the adjusted and unadjusted total rating scores. Scatter plots for these four correlations can be found in Appendix E. Correlations between the individual tests, their subscales, and the criterion variables can be found in Appendix D. It is apparent from examining these correlations that the combining of tests into a battery raises the efficiency of prediction. Best separate prediction

is obtained from subsections of the Engineering and Physical Sciences Aptitude Test.

The complete correlation matrix also shows that years of experience is related to the unadjusted rating scores but is not related to the adjusted total rating score. Thus, it appears that the partitioning of the sample into 4 groups as a function of their experience worked effectively. The smallest magnitude correlation between the test battery summary variable and the performance summary variable was found between the sum of the standard scores on the three tests and the unadjusted total rating score ($r = .338$, $p < .05$, one-tailed test). When years of experience on the job is removed by statistical means, the resultant correlation becomes .461 ($p < .01$, one-tailed test). A complete correlation matrix showing relationships between all variables can be found in Appendix D.

As a check on the reliability of the criterion variable, adjusted total rating scores from the previously used 23-item rating scale were correlated with adjusted total rating scores from the present 14-item scale. For the 33 persons with both data sets, the correlation obtained was .791 ($p < .01$, one-tailed test). The Instrument Men rating scale appears to be a highly reliable performance measure.

Differential validity. No analysis to demonstrate differential validity was possible.

Discussion. It has been reported above that the total test battery is statistically significantly related to the two criterion variables for the job of Instrument Man. The test battery appears to be effectively selecting men who will perform better as Instrument Men. Additional data need to be collected regarding differential validity.

Appendix A***Engineering and Physical Sciences Aptitude Test, Part IV***

Description: Six ability tests for high school students entering engineering training

Author: Bruce V. Moore, C. M. Lapp, and Charles H. Griffin

Publisher: The Psychological Corporation, 1943

Minnesota Paper Form Board

Description: "Seeing" how part of a diagram would fit together to make a complete diagram

Author: Rensis Likert and William H. Quasha, 1941

Publisher: The Psychological Corporation

Personnel Test

Description: General mental ability, composite of several abilities

Author: E. F. Wonderlic, 1922

Publisher: E.F.Wonderlic

Employee ID Number _____
Job Code Number _____

Rater ID Number _____
Date _____

INSTRUMENTMAN RATING SCALE

1. Can install the mechanism and calibrate a Bourdon tube pressure gauge.

Can do it: with major assistance (a more competent or knowledgeable person working with him on the job site)	with minor assistance (such as from directions he could get over the telephone)	without assistance
---	--	--------------------

2. Install a new diaphragm and calibrate a draft gauge.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

3. Troubleshoot a grounded thermocouple wire in a multi-thermocouple measuring system.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

4. Troubleshoot an erratically printing multi-point temperature recorder.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

5. Calibrate a drum level recorder.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

6. Troubleshoot an erroneously reading condensate storage water level indicator or recorder.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

7. Calibrate a differential pressure water flow meter.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

8. Calibrate a boiler air flow meter.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

9. Completely install a pressure switch.

Can do it: with major assistance	with minor assistance	without assistance
-------------------------------------	-----------------------	--------------------

10. Properly take a good water sample.

Can do it:
with major assistance _____ with minor assistance _____

without assistance _____

11. Troubleshoot control air dryer malfunction.

Can do it:
with major assistance _____ with minor assistance _____

without assistance _____

12. Properly use instrument shop filing system.

Can do it:
with major assistance _____ with minor assistance _____

without assistance _____

13. Overhaul and recalibrate a pneumatic signal transmitter.

Can do it:
with major assistance _____ with minor assistance _____

without assistance _____

14. Calibrate a pneumatic controller in the Instrument Shop.

Can do it:
with major assistance _____ with minor assistance _____

without assistance _____

THE DETROIT EDISON COMPANY

9/18/72

STATISTICAL SUMMARY OF SPECIFIED VARIABLES

VARIABLE NAME	NUMBER	MIN	MAX	MEAN	STD.DEV.
1 YEARS OF EXPER.	35	1.0	20.0	6.66	6.569
2 PERS. (RAW)	35	9.0	32.0	23.00	5.281
3 PERS. CORRECTED FOR AGE	35	13.0	38.0	25.38	4.963
4 MPPB	35	21.0	54.0	41.42	6.536
5 EPSAT-MATH	35	1.0	20.0	9.17	4.847
6 EPSAT-FORM	35	0.0	10.0	3.62	2.479
7 EPSAT-PHYS. SCI. COMP.	35	0.0	35.0	17.79	9.038
8 EPSAT-ARITH. REAS.	35	0.0	14.0	4.28	2.885
9 EPSAT-VERB. COMP.	35	4.0	38.0	20.74	9.066
10 EPSAT-HECH. COMP.	35	5.0	21.0	16.14	4.486
11 EPSAT TOTAL	35	28.0	115.0	71.97	23.472
12 PERS. CORRECTED FOR AGE (STD. SCORE)	35	-28.0	22.0	-2.22	9.926
13 MPPB (STD. SCORE)	35	-25.0	14.0	-0.71	7.748
14 EPSAT TOTAL (STD. SCORE)	35	-19.0	10.0	-0.14	10.192
15 UNADJUSTED TOTAL RATING SCORE	35	59.0	132.0	87.45	12.460
16 ADJUSTED TOTAL RATING SCORE	35	5.0	15.0	9.88	2.698
17 SUM OF STANDARD SCORES	35	-52.0	38.0	-3.08	21.194
18 MULTIPLE REGRESSION RESULTANT	35	59.0	132.0	100.60	16.624
BASE IS INSTRUMENT MEN					

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CORRELATION ANALYSIS FOR SPECIFIED VARIABLES

(SAMPLE SIZES IN PARENTHESES)

TABLE NAME	1	2	3	4	5	6	7	8	9	10	11
OF EXPER.	1.000	-0.335	-0.157	-0.128	-0.277	-0.299	0.120	-0.163	-0.113	-0.211	-0.148
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
IRAWI	-0.335	1.000	0.935	0.224	0.496	0.340	0.601	0.281	0.466	0.619	0.609
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
CORRECTED FOR AGE	-0.197	0.935	1.000	0.206	0.416	0.287	0.479	0.155	0.514	0.418	0.598
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-0.128	0.224	0.206	1.000	0.265	0.015	0.319	0.244	0.070	0.454	0.215	
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-MATH	-0.277	0.496	0.416	0.265	1.000	0.457	0.309	0.369	0.164	0.392	0.558
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-FORM	-0.299	0.360	0.287	0.015	0.467	1.000	0.352	0.284	0.295	0.641	0.571
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-PHYS. SCI. COMP.	0.120	0.401	0.479	0.039	0.309	0.352	1.000	0.300	0.516	0.528	0.652
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-ARITH. REAS.	-0.063	0.281	0.135	0.244	0.369	0.284	0.300	1.000	0.026	0.392	0.622
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-VERB. COMP.	-0.113	0.486	0.514	0.070	0.164	0.295	0.386	0.226	1.000	0.480	0.772
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
-MECH. COMP.	-0.281	0.499	0.610	0.454	0.392	0.441	0.538	0.350	0.460	1.000	0.759
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
TOTAL	-0.148	0.609	0.592	0.213	0.558	0.571	0.652	0.249	0.772	0.759	1.000
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
CORRECTED FOR AGE (STD. SCORE)	-0.197	0.935	0.999	0.206	0.416	0.287	0.479	0.155	0.514	0.418	0.598
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
(STD. SCORE)	-0.126	0.227	0.210	0.999	0.262	0.010	0.043	0.245	0.647	0.458	0.219
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
T TOTAL (STD. SCORE)	-0.145	0.608	0.596	0.213	0.557	0.570	0.654	0.427	0.769	0.761	1.000
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
JUSTED TOTAL RATING SCORE	0.382	0.121	0.167	0.188	-0.052	0.100	0.501	0.392	0.229	0.328	0.373
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
STD TOTAL RATING SCORE	0.004	0.238	0.246	0.379	0.129	0.106	0.275	0.221	0.179	0.348	0.305
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
OF STANDARD SCORES	-0.208	0.813	0.632	0.564	0.558	0.412	0.651	0.369	0.635	0.729	0.816
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											
IPLE REGRESSION RESULTANT	-0.170	0.602	0.587	0.555	0.571	0.491	0.740	0.452	0.687	0.815	0.531
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)											

INSTRUMENT MEN

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9/18/72

CORRELATION ANALYSIS FOR SPECIFIED VARIABLES

(SAMPLE SIZES IN PARENTHESES)

VARIABLE NAME	12	13	14	15	16	17	18
1 YEARS OF EXPER.	-0.197	-0.126	-0.145	0.302	0.004	-0.200	-0.170
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
2 PERS. IRAWI	0.935	0.227	0.608	0.121	0.258	0.813	0.602
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
3 PERS. CORRECTED FOR AGE	0.959	0.210	0.598	0.167	0.265	0.632	0.547
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
4 MPFR	0.208	0.999	0.213	0.188	0.379	0.564	0.555
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
5 EPSAT-MATH	0.416	0.262	0.557	-0.052	0.129	0.558	0.571
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
6 EPSAT-FORM	0.287	0.010	0.570	0.100	0.105	0.612	0.491
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
7 EPSAT-PHYS. SCI. COMP.	0.479	0.043	0.854	0.501	0.275	0.691	0.740
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
8 EPSAT-ARITH. REAS.	0.153	0.245	0.427	0.392	0.221	0.365	0.455
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
9 PSAT-VERB. COMP.	0.514	0.067	0.769	0.229	0.179	0.635	0.687
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
10 EPSAT-MECH. COMP.	0.418	0.459	0.761	0.338	0.348	0.729	0.815
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
11 EPSAT TOTAL	0.598	0.215	0.999	0.293	0.226	0.839	0.931
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
12 PERS. CORRECTED FOR AGE (STD. SCORE)	1.000	0.210	0.598	0.167	0.204	0.832	0.597
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
13 MPFR (STD. SCORE)	0.210	1.000	0.212	0.190	0.382	0.565	0.556
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
14 EPSAT TOTAL (STD. SCORE)	0.598	0.212	1.000	0.396	0.307	0.838	0.930
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
15 UNADJUSTED TOTAL RATING SCORE	0.167	0.190	0.396	1.000	0.745	0.338	0.610
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
16 ADJUSTED TOTAL RATING SCORE	0.266	0.382	0.337	0.743	1.000	0.512	0.497
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
17 SUM OF STANDARD SCORES	0.832	0.566	0.238	0.338	0.412	1.000	0.925
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							
18 MULTIPLE REGRESSION RESULTANT	0.587	0.654	0.930	0.410	0.467	0.925	1.000
(1351) (1351) (1351) (1351) (1351) (1351) (1351) (1351)							

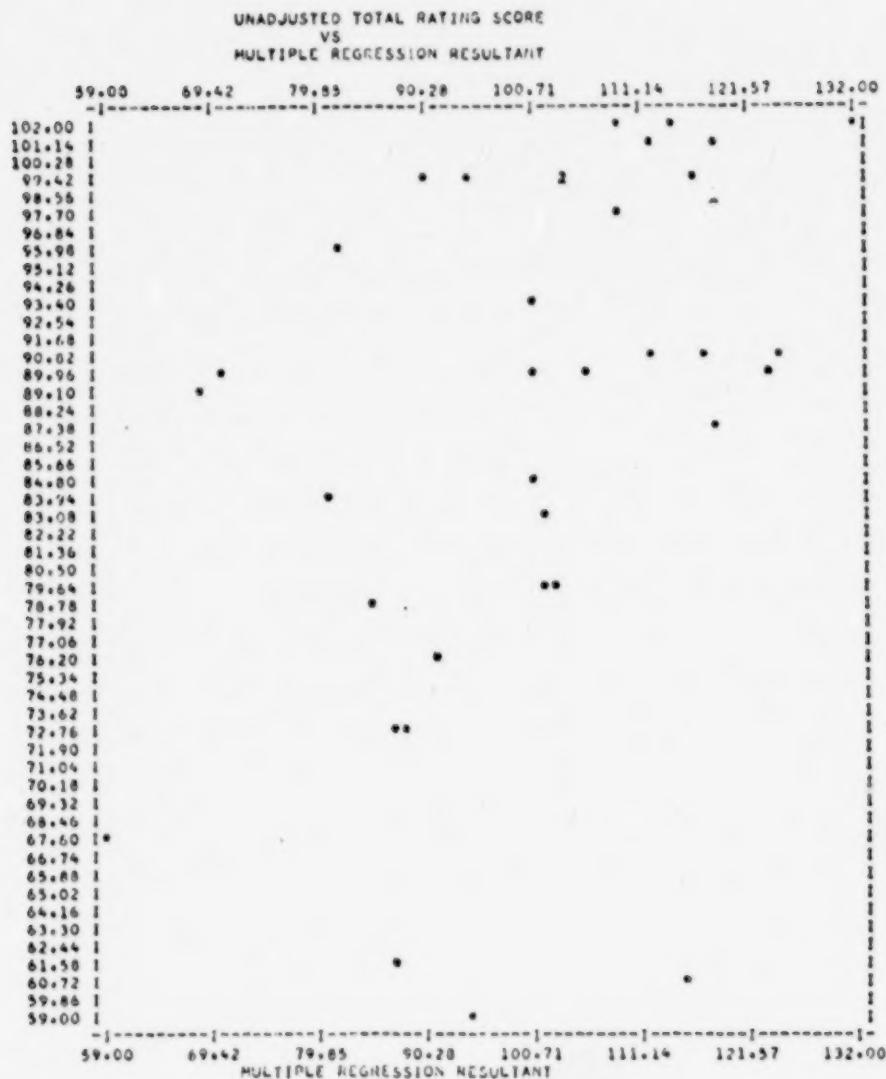
BASE IS INSTRUMENT MEN

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COMPLIANCE ANALYSIS SYSTEM - PAIRWISE PLOT



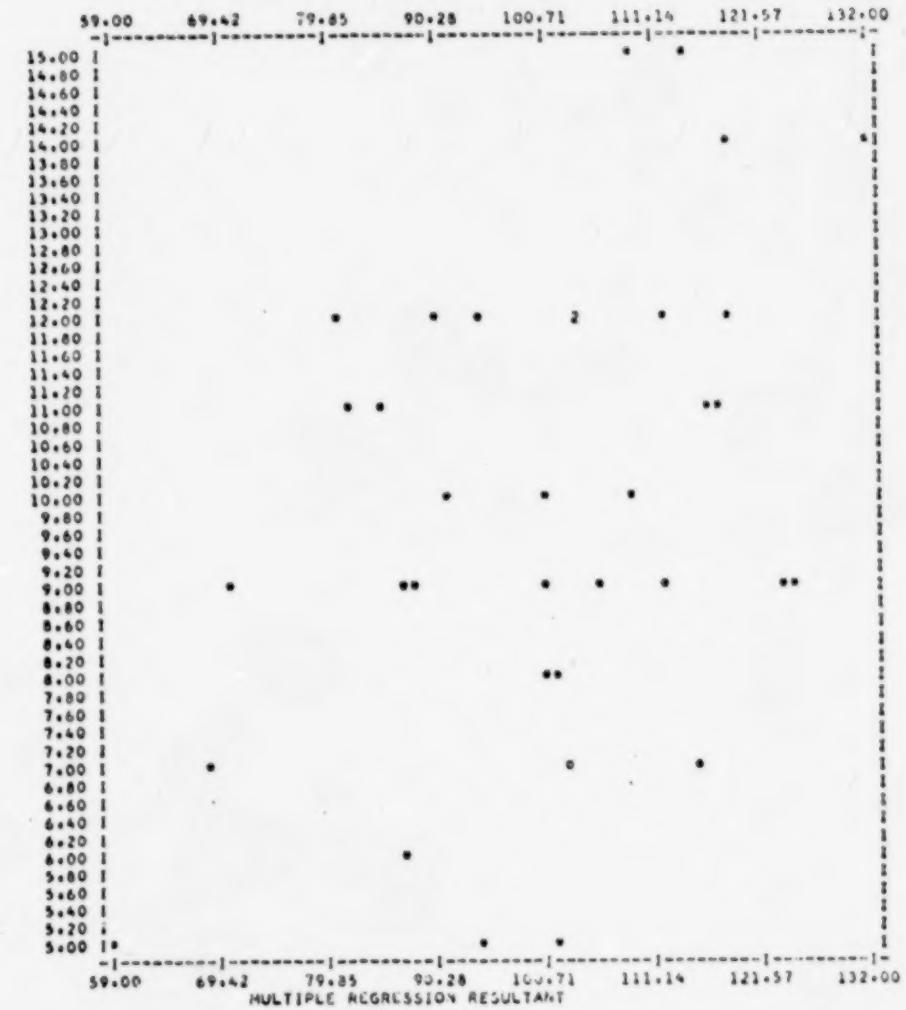
BASE IS INSTRUMENT MEN
NUMBER OF EMPLOYEES = 35
CORRELATION = 0.410

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COMPLIANCE ANALYSIS SYSTEM - PAIRWISE PLOT

ADJUSTED TOTAL RATING SCORE
VS
MULTIPLE REGRESSION RESULTANT

BASE IS INSTRUMENT MEN
NUMBER OF EMPLOYEES = 35

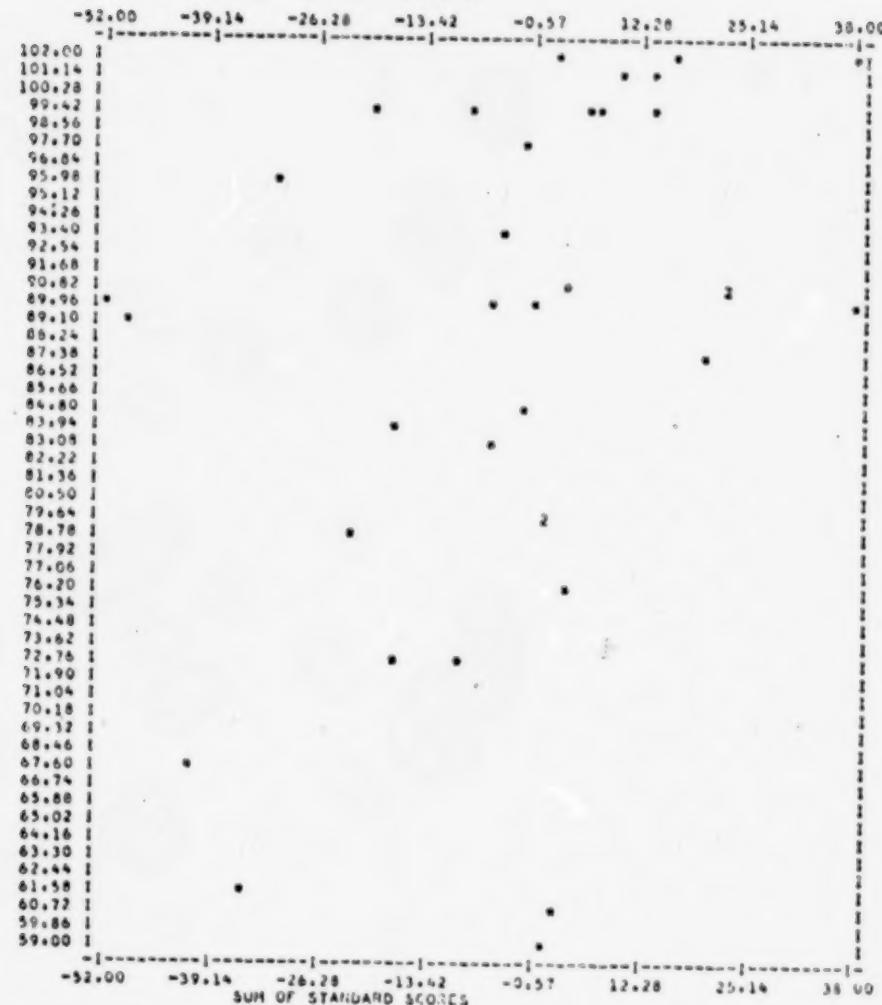
CORRELATION = 0.407

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COMPLIANCE ANALYSIS SYSTEM - PAIRWISE PLOT

UNADJUSTED TOTAL RATING SCORE
VS
SUM OF STANDARD SCORESBASE IS INSTRUMENT MEN
NUMBER OF EMPLOYEES = 35

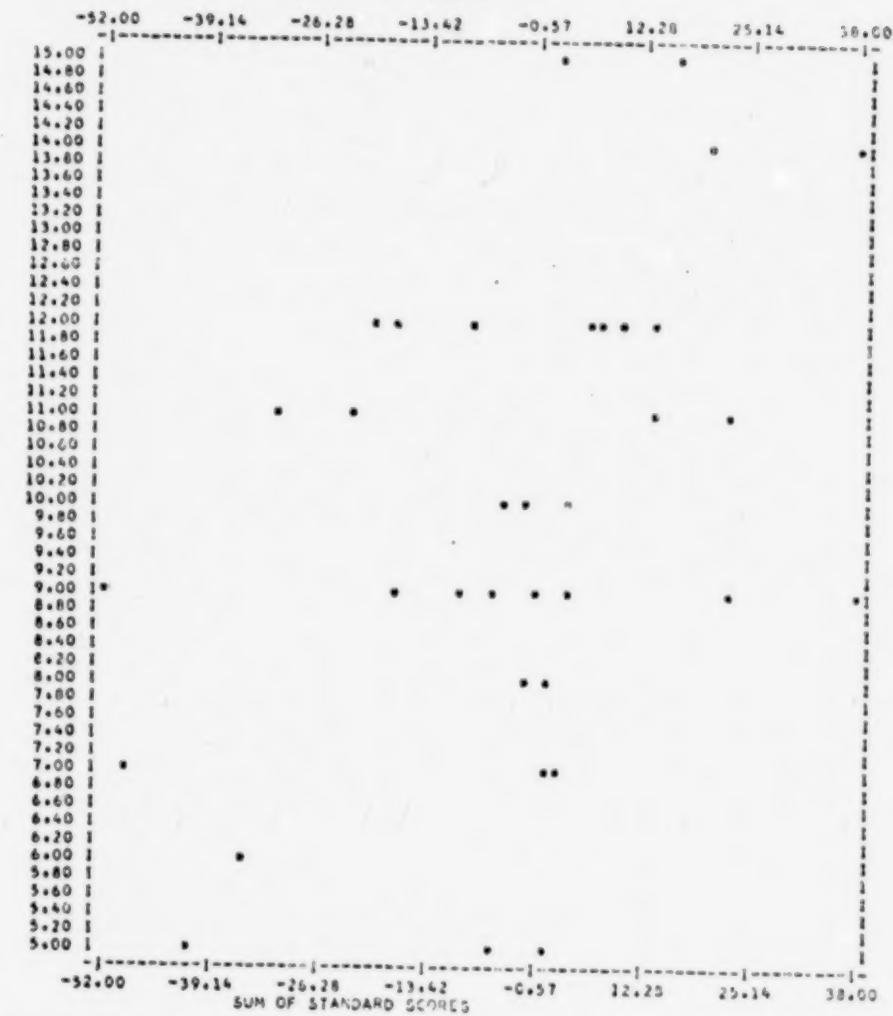
CORRELATION = 0.338

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COMPLIANCE ANALYSIS SYSTEM - PAIRWISE PLOT

ADJUSTED TOTAL RATING SCORE
VS
SUM OF STANDARD SCORESBASE IS INSTRUMENT MEN
NUMBER OF EMPLOYEES = 35

CORRELATION = 0.412

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CORRELATION ANALYSIS FOR SPECIFIED VARIABLES

VAR. NO.	VARIABLE NAME
1	YEARS OF EXPER.
2	PERS. (RAV)
3	PERS. CORRECTED FOR AGE
4	MPFB
5	EPSAT-MATH
6	EPSAT-FORM
7	EPSAT-PHYS., SCI., COMP.
8	EPSAT-ARITH., HEAS.
9	EPSAT-VERB., COMP.
10	EPSAT-MECH., COMP.
11	EPSAT TOTAL
12	PERS. CORRECTED FOR AGE (STD. SCORE)
13	MPFB (STD. SCORE)
14	EPSAT TOTAL (STD. SCORE)
15	UNADJUSTED TOTAL RATING SCORE
16	ADJUSTED TOTAL RATING SCORE
17	SUM OF STANDARD SCORES
18	MULTIPLE REGRESSION RESULTANT

BASE IS INSTRUMENT MEN

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
2799	1	23	26	49	9	4	0	5	0	13	39	-2	0	-15	73	9	-9
3354	1	30	30	43	14	8	1	6	21	13	59	6	1	-6	59	5	1
3818	1	26	26	33	5	3	15	1	26	13	63	-2	-11	-6	73	7	-13
3887	1	25	25	53	19	1	15	6	20	21	62	2	13	4	87	14	19
2853	1	28	31	45	5	1	15	0	12	18	51	0	4	-9	76	10	3
2576	1	20	23	38	5	3	9	2	26	6	51	-8	-5	-9	73	11	-24
2800	1	24	25	45	3	0	3	0	15	13	34	-6	4	-17	94	12	-17
3555	1	23	23	43	20	10	17	4	22	21	94	-8	1	9	61	7	1
3397	2	24	24	41	12	5	21	14	4	18	74	-6	-1	1	90	9	-6
3556	2	22	22	39	3	3	9	5	17	21	58	-10	-4	-6	97	12	-23
2746	2	27	27	40	17	4	19	8	14	15	77	0	-2	2	90	8	0
2488	2	26	31	48	9	8	21	4	30	18	88	6	7	7	91	11	22
2682	2	30	34	47	13	5	33	5	38	21	115	14	6	18	102	14	31
3158	2	13	16	35	5	2	17	0	20	16	60	-22	-8	-5	62	6	-35
3157	10	15	19	40	3	6	11	1	9	15	43	-16	-2	-13	59	11	-31
2877	12	25	28	45	9	6	17	5	19	16	72	2	4	0	99	12	6
2877	12	23	25	41	5	5	13	7	15	16	61	-2	-1	-9	93	12	-9
3020	12	35	38	41	10	2	23	5	36	21	109	22	-1	16	90	9	27
1500	15	21	25	38	8	2	24	6	31	13	60	-6	-5	3	83	5	-6
2090	15	29	32	43	10	4	32	5	19	14	64	10	1	5	102	15	16
2215	15	22	25	40	7	2	24	5	25	20	63	-4	-2	5	98	9	-1
3119	20	9	13	38	2	0	6	4	7	9	28	-28	-5	-19	90	9	-32
989	20	12	17	32	1	1	13	2	11	6	36	-20	-12	-17	60	7	-49
1229	20	19	22	35	12	0	15	4	9	13	53	-10	16	-8	93	10	-6
1568	20	28	31	36	11	5	19	3	30	18	86	8	-7	6	99	12	7
2870	3	22	25	41	8	3	24	6	32	19	52	-6	-1	8	91	9	3
2007	3	28	28	42	15	7	27	4	23	21	97	2	0	11	99	11	13
2520	4	23	23	44	16	6	21	4	26	19	90	-8	2	6	102	13	2
3208	4	27	27	39	6	4	11	5	31	19	76	0	-4	2	85	6	-2
3394	4	25	25	50	9	3	15	4	14	10	63	-5	9	-6	60	7	1
3592	4	27	30	33	15	8	31	6	25	19	104	6	-11	14	101	12	9
3220	5	22	27	21	11	2	10	0	7	5	35	0	-25	-16	65	5	-41
2201	5	22	26	49	7	8	31	5	29	21	99	2	8	12	97	9	22
3416	5	25	26	48	10	2	21	9	31	18	91	-2	7	8	101	12	19
1898	8	23	25	36	7	7	28	8	26	18	94	-4	-7	9	97	10	-2

BASE IS INSTRUMENT MEN

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9/18/72

Respondent's Exhibit No. 15



THE MULTI-APTITUDE TEST

Form A

Edward F. Cawthon, Louis Bamer, Carlton, and
Edna Hartman, Everett E. Fisher, Thomas F. Gilbert, Joseph C. Hammock, Herbert C. Harvard, Frederick B. King,
Jack Mackman, Raymond H. Shander, Paul N. Strong, Gerald H. Whalock, Paul G. Whitmore, W. Jason Williams,
Warren B. Willingham

NAME	Last	First	Middle	DATE
------	------	-------	--------	------

AGE	SEX	A
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B	C
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PART	SCORE
I. Vocabulary	
II. General Information	
III. Arithmetic	5
IV. Number Series	
V. Figure Classification	
VI. Mechanical Comprehension	
VII. Word Recognition	
VIII. Scrambled Letters	
IX. Checking	
X. Paper Form Board	

GENERAL DIRECTIONS

This test consists of ten parts measuring different aptitudes and abilities. Each part has its own time limit. The time limits are short. Work on each part only during the time allowed for it. If you finish a part before time is called, go back and check your work on that part. Do not return to a previous part, or go ahead to a later part. Work rapidly on each part, but try not to make mistakes.

Each part has its own special directions, and one or two examples, correctly marked. Be sure you understand the directions for each part before you start to work on it. The examiner will not answer any questions after the starting signal for a part has been given.

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New York 17, N. Y.

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I. VOCABULARY

Each test word, in capital letters, is followed by five possible answers. The correct answer is the word which *means most nearly the same* as the test word. Make a *heavy* line with your pencil between the pair of dotted lines at the right which **are** lettered the same as the correct answer. EXAMPLE:

FREQUENT: A) always B) often
C) never D) very E) soon

A B C D E
..... |

"Often" means most nearly the same as "frequent," so a heavy line has been made between the dotted lines at the right under B.

Mark an answer for every word. If you don't know the meaning of a word, make the best choice you can.

You will have *three minutes* to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

EXTRAVAGANT: A) exclusive B) prodigious C) truant D) covetous E) excessive	A B C D E
HOMAGE: A) foppery B) toll C) allegiance D) foolishness E) fervor	A B C D E
IMMERSE: A) suspend B) anoint C) disclose D) submerge E) originate	A B C D E
LENATE: A) impoverish B) estrange C) dissipate D) conciliate E) deprecate	A B C D E
GARNISH: A) wield B) harrow C) toughen D) beautify E) degrade	A B C D E
PRECARIOUS: A) intimate B) wary C) invaluable D) perilous E) adventurous	A B C D E
DIABOLIC: A) disrupting B) dictatorial C) demented D) fiendish E) angelic	A B C D E
SAVOUR: A) relish B) poise C) balm D) fragrance E) prudence	A B C D E
QUAIL: A) recoil B) stimulate C) rout D) whiten E) deserv	A B C D E
IMBUE: A) distort B) refute C) abstain D) inoculate E) allegge	A B C D E
AFRONT: A) opulence B) admittance C) reversion D) deception E) indignity	A B C D E
ANTIPATHY: A) animosity B) discomfiture C) sobriety D) clemency E) negation	A B C D E
WILE: A) frontier B) stealth C) force D) vendue E) stratagem	A B C D E
LEVITY: A) assessment B) frivolity C) solemnity D) rectitude E) mirthlessness	A B C D E
DROLL: A) apprehensive B) obtuse C) pitiable D) ludicrous E) listless	A B C D E

II. GENERAL INFORMATION

Each problem consists of a question or an incomplete sentence, followed by four possible answers. Choose the answer which *best* answers the question or completes the sentence, and put a cross in the box at the right which is lettered the same as the answer you have chosen. EXAMPLE:

Sausage is ordinarily made from
 A) beef B) mutton
 C) pork D) venison

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Sausage is ordinarily made from pork, so a cross has been put in the box at the right under C.

If you don't know the answer to a problem, make the best choice you can. Leave it blank only if you have no hunch whatever about any of the answers.

You will have *two minutes* to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

Scrooge appears in

A) Henry IV B) Vanity Fair
 C) Canterbury Tales D) The Christmas Carol

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Coral is found in

A) reefs B) mines C) oysters D) elephants

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

The Amazon lies chiefly in

A) Chile B) Brazil C) Bolivia D) Argentina

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Which is a chemical element?

A) salt B) steel C) brass D) mercury

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

A fuse is used primarily for

A) speed B) safety C) economy D) efficiency

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

The most prominent industry of Chicago is

A) steel B) textiles C) packing D) automobiles

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Bile is secreted by the

A) liver B) spleen C) kidneys D) pancreas

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Which of these is *not* a trade name?

A) stetson B) frigidaire
 C) scotch tape D) ginger ale

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

The rutabaga is a

A) fish B) tree C) lizard D) vegetable

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Which countries are most closely associated with the development of the ballet?

A) France and England B) France and Russia
 C) Germany and Russia D) England and the U.S.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Which was settled first?

A) Boston B) Santa Fe
 C) Plymouth Rock D) St. Augustine

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

With what architectural form is the "flying buttress" associated?

A) Gothic B) Georgian
 C) Egyptian D) Romanesque

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

The creel is used in

A) hunting B) fishing
 C) dancing D) sculpturing

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Frank Lloyd Wright is noted for his work in

A) politics B) aviation
 C) sculpture D) architecture

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

What is the final stage in passing an amendment to the constitution?

A) state ratification B) presidential signature
 C) congressional action D) supreme court decision

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

STOP. GO BACK AND CHECK YOUR WORK.

III. ARITHMETIC

Perform the indicated operations for each problem, and write the answer in the space provided for it. Use the margin for figuring whenever necessary. In all problems involving fractions, reduce your answers to MIXED NUMBERS, with the fraction parts in their LOWEST TERMS. EXAMPLE:

$$1\frac{3}{4}$$

$$2\frac{3}{4}$$

$$4\frac{1}{2}$$

The answer MUST be $4\frac{1}{2}$, NOT $4\frac{2}{4}$ or $4\frac{10}{10}$ or $4\frac{9}{9}$.

You will have four minutes to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

$$\begin{array}{r} 88 \\ - 54 \\ \hline 79 \end{array}$$

$$\boxed{}$$

5. $\boxed{}$

$$98 \mid 9016$$

$$\begin{array}{r} 611 \\ - 335 \\ \hline \end{array}$$

$$\boxed{}$$

6. $\boxed{}$

$$.39 \mid 3.003$$

$$\begin{array}{r} 37 \\ - 64 \\ \hline \end{array}$$

$$\boxed{}$$

7. $\begin{array}{r} 5\frac{3}{4} \\ - 8\frac{7}{6} \\ \hline \end{array}$

$$\begin{array}{r} 6.9 \\ - 5.2 \\ \hline \end{array}$$

$$\boxed{}$$

8. $\begin{array}{r} 5\frac{1}{3} \\ - 2\frac{2}{5} \\ \hline \end{array}$

$$\boxed{}$$

$$3\frac{3}{4} - 1\frac{1}{3} + 1\frac{1}{5}$$

$$\boxed{}$$

$$7\frac{1}{2} - 3 \times 1\frac{1}{5}$$

$$\boxed{}$$

IV. NUMBER SERIES

Each problem consists of a series of six numbers formed according to some rule. You are to find the rule, and then write the next two numbers of the series on the lines at the right. EXAMPLES:

1. 12 12 9 9 6 6 3 ? ?

In this example the rule was to write each number twice, and to subtract 3 from the second number of each pair to get the number of the next pair.

2. -2 4 -6 8 -10 12 -14 ?

Here the rule was to add 2 to each number to get the next one, and to give a minus sign to every other number.

You will have *four minutes* to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

3 2 2 2 1 1 — —

5 6 8 9 11 12 — —

() $\frac{2}{3}$ $\frac{3}{4}$ $\frac{4}{5}$ $\frac{5}{6}$ $\frac{6}{7}$ — —

11 22 71 61 55 46 — —

6 9 7 4 0 -5 — —

11 16 35 21 15 8 — —

2 8 6 5 $1\frac{1}{2}$ $1\frac{1}{4}$ — —

25 $-\frac{1}{625}$ 125 $-\frac{1}{125}$ 25 $-\frac{1}{25}$ — —

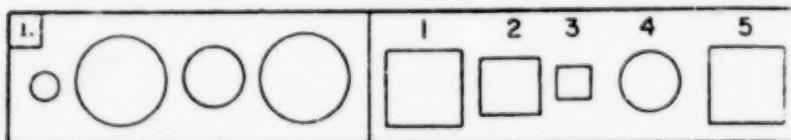
() -7 10 11 10 -25 — —

4 19 -36 25 16 -9 — —

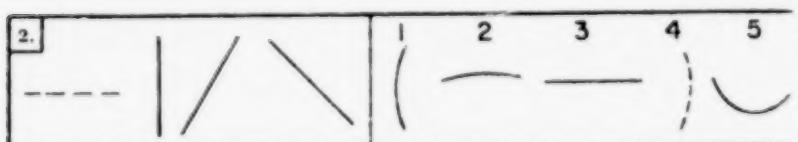
GO ON TO THE NEXT PAGE.

V. FIGURE CLASSIFICATION

In each problem there are four figures at the left, all alike in some way, and numbered figures at the right. Find the one at the right which goes with those at the left, and write its number on the line at the far right of the box. EXAMPLE



The figures at the left are round, and all but one of those at the right are so. Number 4 at the right is round, however, so it goes with those at the left, and has been written on the line at the far right.



The answer is 4, because all the lines at the left are straight, and all those at the right are curved.

Mark an answer for every problem. If you don't know the answer to a problem, make the best choice you can.

You will have *four minutes* to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5



STOP. GO BACK AND CHECK YOUR WORK.

VI. MECHANICAL COMPREHENSION

Each problem consists of a picture with a question under it. PRINT the CAPITAL LETTER of the correct answer in the box at the right of the question. EXAMPLES (with correct answers):

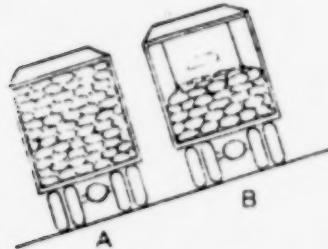
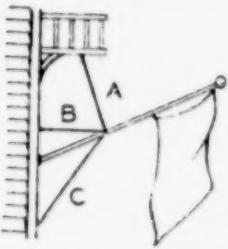
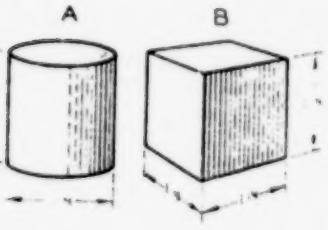
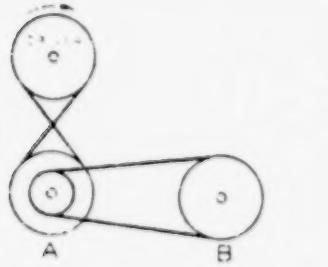
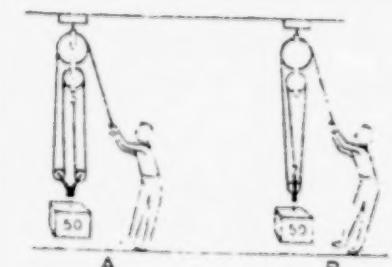
1. Which block weighs less? (If equal, mark C.) <input type="text" value="A"/>	2. If the driver turns in the direction shown, which way will the belt move? (If neither, mark C.) <input type="text" value="B"/>

If you don't know the answer to a question, make the best choice you can. Leave it blank only if you have no knowledge whatever about any of the answers.

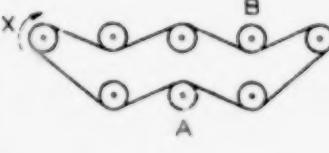
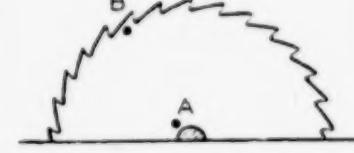
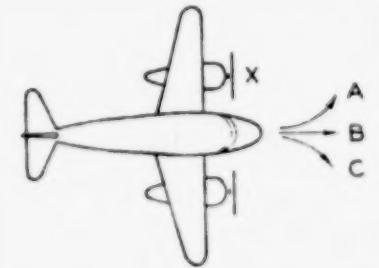
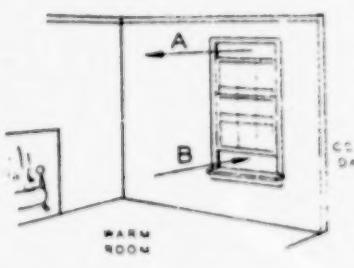
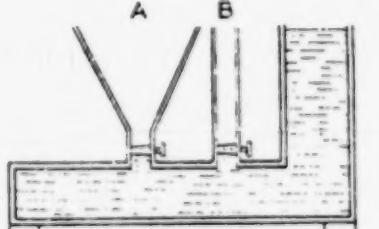
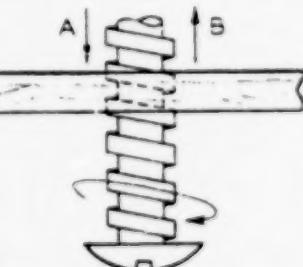
You will have four minutes to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

* Adapted with permission from Sample Test in Mechanical Comprehension, Form E, Test Item Number 10, by the Psychological Corporation.

	1. Which truck is more apt to turn over? (If equal, mark C.) <input type="checkbox"/>
	2. Which wire by itself will not hold up the flagpole? <input type="checkbox"/>
	3. Which weighs more? (If equal, mark C.) <input type="checkbox"/>
	4. If the canoe is moving forward, which way will it go when the front man holds his paddle in the water in the position shown? <input type="checkbox"/>
	5. Which wheel turns in the same direction as the driver? (If neither, mark C.) <input type="checkbox"/>
	6. Which man must pull in more rope to raise the box the same distance? (If equal, mark C.) <input type="checkbox"/>

GO ON TO THE NEXT PAGE.

	7. Which wheel (A or B) turns in the same direction as X? (If neither, mark C.) <input type="checkbox"/>
	8. Which spot will move slower as the saw turns? (If equal, mark C.) <input type="checkbox"/>
	9. When the engine at X is out of order, which way will the plane tend to go? <input type="checkbox"/>
	10. Which way will the air move? (If neither, mark C.) <input type="checkbox"/>
	11. In which container (A or B) will the water rise higher when the valves are opened? (If equal, mark C.) <input type="checkbox"/>
	12. If the bolt is screwed in the direction shown, which way will it move? (If neither, mark C.) <input type="checkbox"/>

STOP. GO BACK AND CHECK YOUR WORK.

VII. WORD RECOGNITION

Each question consists of a *very common* word which has been partly erased. Try to decide what the word is, and PRINT it on the line at the right. EXAMPLE:

flower flower

If you don't recognize a word, make the best guess you can. Leave the line blank only if you have no hunch whatever.

You will have *five* minutes to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

1. **teach** _____
2. **desire** _____
3. **finish** _____
4. **mine** _____
5. **visit** _____
6. **forget** _____
7. **strong** _____
8. **newspaper** _____
9. **common** _____
10. **condition** _____
11. **surprise** _____
12. **convey** _____
13. **sharp** _____
14. **crib** _____
15. **superior** _____
16. **obligation** _____
17. **deaf** _____

STOP. GO BACK AND CHECK YOUR WORK.

VIII. SCRAMBLED LETTERS

Each problem consists of a *very common* five-letter word, but the letters have been scrambled. You are to try to find the correct word, and PRINT it on the line at the right. EXAMPLE:

VEOBA ABOVE

The letters V E O B A can be rearranged to form the word ABOVE.

You will have *five minutes* to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

1. EHILW _____

2. EWTRI _____

3. WORBN _____

4. TEHWI _____

5. BILUT _____

6. ADEHR _____

7. AERTW _____

8. CRYAR _____

9. LAYID _____

10. DENRU _____

11. ARTGN _____

STOP. GO BACK AND CHECK YOUR WORK.

IX. CHECKING

Each problem consists of a pair of names or a pair of numbers. If they are exact the same, PRINT a CAPITAL S on the line between them. If they are different in any way, PRINT a CAPITAL D on the line between them. EXAMPLES (correct marked):

1. 80172 D 80192
2. Jones Co. Ltd. S Jones Co. Ltd.
3. 314250 S 314250
4. Paul L. Kelley D Paul L. Kelly

This is a speed and accuracy test. You will have *one minute* to work on it.

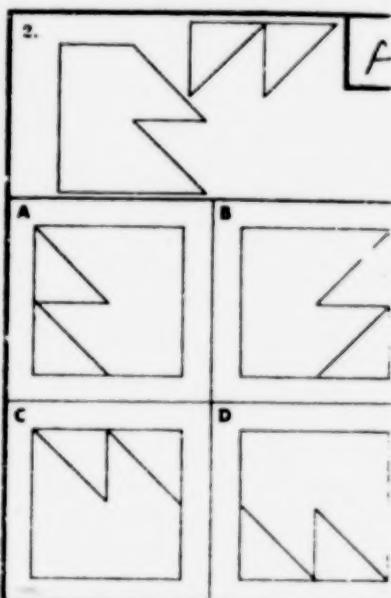
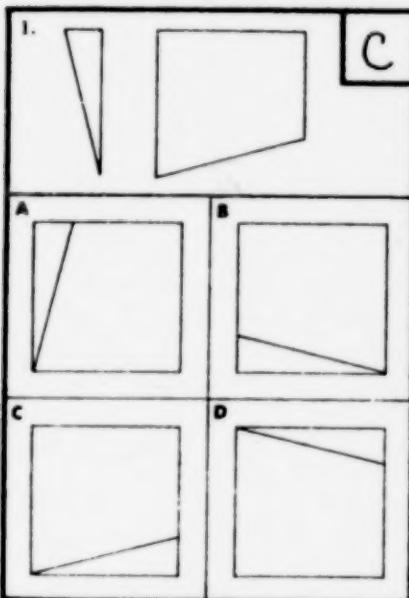
DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

1. 23157 23157
2. C. J. Gamble C. J. Gambel
3. 147313 147313
4. Lee, Lewis Lee, Lewis
5. 72633 72933
6. Armstrong Boynton Inc. Armstrong Boyton Inc.
7. 8379986 8379986
8. G. W. Reaves G. W. Reeves
9. 359185 350185
10. Witt Wiring Service Witt Wiring Service
11. 744318 744318
12. Cox-Baker and McAuley Cox-Baker and McCauley
13. 9719231 9716231
14. J. R. Chase J. R. Chase
15. 32404 32404
16. Microtone Macrotone
17. 94051 94051
18. frane Air Conditioning Trane Air Conditioning
19. 443391 443491
20. John C. Gravis John C. Graves
21. 37946 32946
22. Willock Groc. Mkt. Willock Groc. Mkt.
23. 04775 03275
24. Dixiesteel Dixisteel
25. 1394194 1392194
26. Graham's Variety Shop Graham's Variety Shop
27. 6326127 6326127
28. P. A. Zirkle P. A. Zirkel
29. 7926551 7929551
30. D. Victor Zaner D. Victor Zaner

STOP. GO BACK AND CHECK YOUR WORK.

X. PAPER FORM BOARD

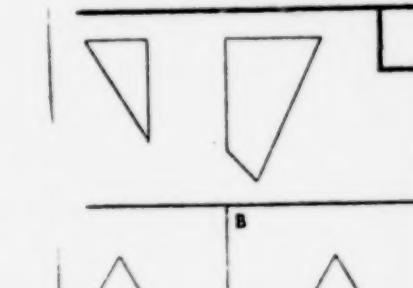
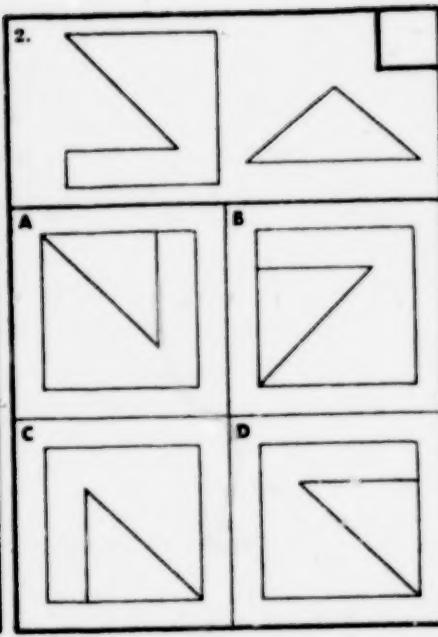
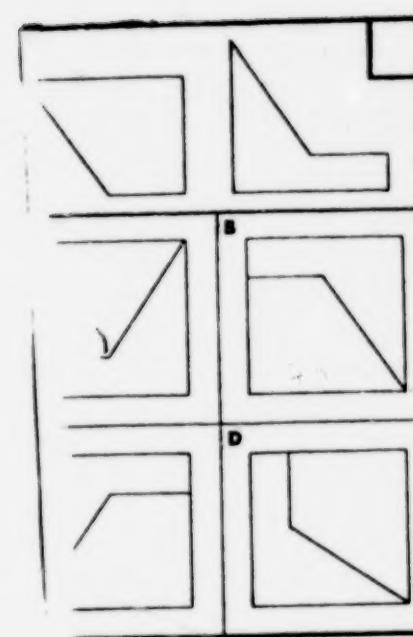
In each problem, think of the figures in the upper section as the pieces of a jigsaw puzzle. They can be slid around, but they *cannot* be turned over. If you slide the pieces around, they will fit together to make one of the four figures A or B or C or D below. PRINT the CAPITAL LETTER of that figure in the upper right corner.



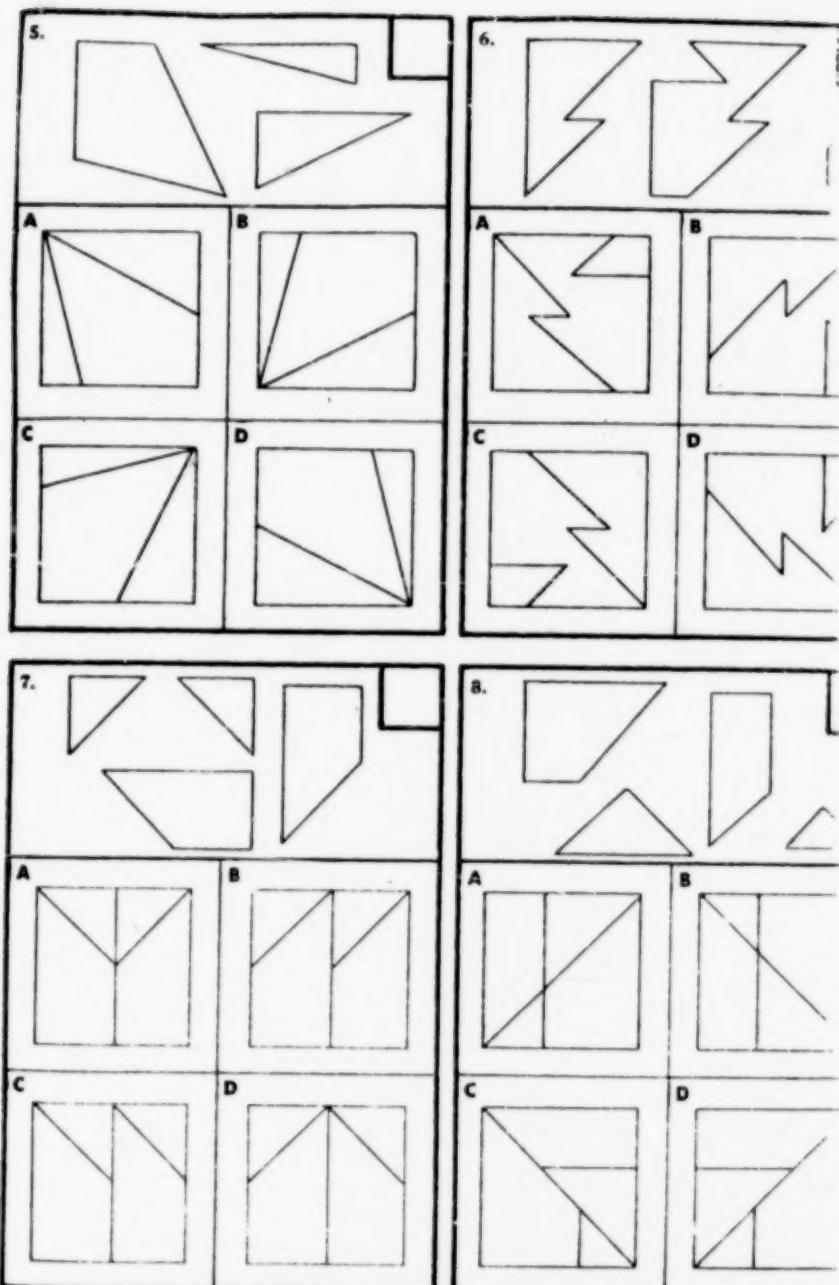
Mark an answer for every problem. If you don't know the answer to a problem, make the best choice you can.

You will have three minutes to work on this test.

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.



GO ON TO THE NEXT PAGE.



STOP. GO BACK AND CHECK YOUR WORK.

Respondent's Exhibit No. 16

PART II: FORMULATION

(Time 10 minutes one page)

Directions: In this part you are to read each statement or short paragraph and do what it tells you to do. In most cases this involves writing an algebraic expression for what the statement says. As in Part I, select the correct answer from among the five choices and record your answer by filling in the space between the dotted lines under the letter of the correct choice on the answer sheet. Study the samples:

Sample:

X. If x is a number, twice that number would be expressed algebraically as:

(A) x (B) x^2 (C) $2x$ (D) $2x^1$ (E) $4x$

Y. If x and y represent two numbers, their sum would be expressed as:

(A) $x+y$ (B) xy (C) $x-y$ (D) x^1y^2 (E) $\frac{x}{y}$

PART III: PHYSICAL SCIENCE COMPREHENSION

(Time 10 minutes, one page)

Directions: Examine each statement below and decide whether it is true or false. If the statement is true, fill in the space under T on the answer sheet. If the statement is false, fill in the space under F.

Samples: X. Iron is a metal.

Y. Water is a solid.

Iron is a metal; so the space under T has been filled in on the answer sheet for Sample X.

Water is a liquid, not a solid. Therefore, the space under F has been filled in for Sample Y.

PART IV: ARITHMETIC REASONING*(Time 15 minutes, one page)*

Directions: Solve these problems. Use the extra sheet of paper provided for any figuring you need to do.

1. If 2 apples cost 10 cents, how many cents will 3 apples cost?
(A) 5 (B) 10 (C) 15 (D) 25 (E) 30

2. If a car travels 80 miles in 2 hours, how many hours are required for a trip of 240 miles?
(A) 3 (B) 4 (C) 5 (D) 6 (E) 7

Respondent's Exhibit No. 17**INSTRUCTIONS FOR PART III**

On the next several pages you will be given some problems in arithmetical reasoning. After each problem there are five answers, but only one of them is the correct answer. You are to solve each problem and indicate which answer you think is correct by marking the proper space on the answer sheet. The following problems have been done correctly. Study them carefully.

Example X: How many apples can you buy for 60 cents at the rate of 3 for 10 cents?

(a) 6 (b) 12 (c) 18 (d) 20 (e) 30

The correct answer to the problem is 18, which is (c); therefore the space under the letter (c) on the separate answer sheet has been filled in.

Example Y: In 5 weeks John has saved \$3.50. What have his average weekly savings been?

(a) 35¢ (b) 40¢ (c) 50¢ (d) 70¢ (e) 80¢

The correct answer to the above problem is 70¢; accordingly, choice (d) has been marked as the correct answer on the answer sheet.

When you are told to begin, turn the page immediately and begin to work. When you finish one page, go on to the next. Both speed and accuracy are important. You will be allowed 30 minutes, but you may not be able to finish in the time allowed.

Do Not TURN THIS PAGE UNTIL YOU ARE TOLD TO BEGIN

PART III: ARITHMETIC REASONING

1. If the total area of a picture measuring 10 inches by 12 inches plus a matting of uniform width surrounding the picture is 224 square inches, the width of the matting is

- (A) 2 inches
- (B) $2\frac{4}{11}$ inches
- (C) 3 inches
- (D) 4 inches
- (E) 5 inches.

2. The net price of a \$25 item after successive discounts of 20% and 30% is

- (A) \$11.00
- (B) \$12.50
- (C) \$14.00
- (D) \$19.00
- (E) \$21.00.

3. The cost of 63 inches of ribbon at \$.12 per yard is

- (A) \$.20
- (B) \$.21
- (C) \$.22
- (D) \$.23
- (E) \$.24.

4. If $1\frac{1}{2}$ cups of cereal are used with $4\frac{1}{2}$ cups of water, the amount of water needed with $\frac{3}{4}$ of a cup of cereal is

- (A) 2 cups
- (B) $2\frac{1}{8}$ cups
- (C) $2\frac{1}{4}$ cups
- (D) $2\frac{1}{2}$ cups
- (E) $2\frac{3}{4}$ cups.

5. Under certain conditions, sound travels at about 1100 ft. per second. If 88 ft. per second is approximately equivalent to 60 miles per hour, the speed of sound, under the above conditions, is, of the following, closest to

- (A) 730 miles per hour
- (B) 740 miles per hour
- (C) 750 miles per hour
- (D) 760 miles per hour
- (E) 770 miles per hour

6. If shipping charges to a certain point are 62 cents for the first five ounces and 8 cents for each additional ounce, the weight of a package for which the charges are \$1.66 is

- (A) 13 ounces
- (B) $1\frac{1}{8}$ pounds
- (C) $1\frac{1}{4}$ pounds
- (D) $1\frac{1}{2}$ pounds
- (E) $1\frac{3}{4}$ pounds.

7. If 15 cans of food are needed for seven men for two days, the number of cans needed for four men for seven days is

- (A) 10
- (B) 15
- (C) 20
- (D) 25
- (E) 30.

8. An automobile traveled 6 hours at an average speed of 40 miles per hour. It averaged only 30 miles per hour on the return trip. What was the average speed per hour, to the nearest mile, for the round trip?

- (A) 34 mph
- (B) 35 mph
- (C) 36 mph
- (D) 37 mph
- (E) 38 mph.

9. A gallon of water is equal to 231 cubic inches. How many gallons of water are needed to fill a fish tank that measures 11" high, 14" long and 9" wide?

- (A) 6 gal.
- (B) 8 gal.
- (C) 9 gal.
- (D) 14 gal.
- (E) 15 gal.

10. A savings and loan association pays 4% interest which is compounded quarterly. At this rate, what is the interest on \$600 for one quarter?

- (A) \$4
- (B) \$6
- (C) \$24
- (D) \$60
- (E) \$75.

11. A carpenter needs boards for 4 shelves, each 2'9" long, and $\frac{1}{2}$ " thick. How many feet of board should he buy?

- (A) 11
- (B) 11 $\frac{1}{6}$
- (C) 13
- (D) 15 $\frac{1}{2}$
- (E) 18.

12. Assuming that on a blueprint $\frac{1}{8}$ inch equals 12 inches of actual length, the actual length in feet of a steel bar represented on the blueprint by a line $3\frac{3}{4}$ inches long is

- (A) $3\frac{3}{4}$
- (B) 30
- (C) 45
- (D) 180
- (E) 360.

13. In a circle graph a segment of 108 degrees is shaded to indicate the overhead in doing \$150,000 gross business. The overhead amounts to

- (A) \$1,200
- (B) \$4,500
- (C) \$12,000
- (D) \$45,000
- (E) \$90,000.

14. The Baltimore Colts won 8 games and lost 3. The ratio of games won to games played is

- (A) 8 : 11
- (B) 3 : 11
- (C) 8 : 3
- (D) 3 : 8
- (E) 11 : 3.

15. The average of a series of numbers is 34 and their sum is 510. How many numbers are there in the series?

- (A) 15
- (B) 34
- (C) 60
- (D) 510
- (E) Cannot be determined from the given data.

16. A bank president receives 8 times as much salary as one of the messenger boys. If the sum of their salaries is \$13,500, the president's salary is

- (A) \$ 8,500
- (B) \$10,000
- (C) \$12,000
- (D) \$12,500
- (E) \$13,000.

17. A bridge cable, 500 feet long when the temperature was 60 degrees Fahrenheit, expanded 0.3% when the temperature rose to 90 degrees Fahrenheit. It increased

- (A) .15 ft.
- (B) 1.5 ft.
- (C) 15 ft.
- (D) 501.5 ft.
- (E) 505 ft.

18. If there are 10 mills in a cent, a tax of 43.2 mills per dollar on property assessed at \$12,500 is

- (A) \$5400
- (B) \$54
- (C) \$540
- (D) \$5.40
- (E) None of these.

19. A single discount equivalent to two successive discounts of $12\frac{1}{2}\%$ and 20% is

- (A) 30%
- (B) $16\frac{1}{4}\%$
- (C) $32\frac{1}{2}\%$
- (D) $22\frac{1}{2}\%$
- (E) 20%.

20. The number of square tiles each 8 inches on a side needed to cover a rectangular area 12 feet by 16 feet is

- (A) 36
- (B) 3
- (C) 432
- (D) 864
- (E) 960.

21. An alloy is composed of 49.2% bismuth, 12.3% tin, 24.6% lead, and the remainder cadmium. In making a circle graph to show this composition, the number of degrees in the sector for cadmium is approximately

- (A) 31
- (B) 25
- (C) 14
- (D) 50
- (E) 60.

22. If an automobile travels 80 miles at the rate of 20 miles per hour and then returns over the same route at the

rate of 40 miles per hour, the average speed per hour for the entire trip (going and return) is

- (A) 30 miles
- (B) $26\frac{2}{3}$ miles
- (C) 60 miles
- (D) $33\frac{1}{3}$ miles
- (E) 40 miles.

23. The smaller angle between the hands of a clock at 3:30 is

- (A) 105°
- (B) 75°
- (C) 90°
- (D) 60°
- (E) 80° .

24. If one-third of the liquid contents of a can evaporates on the first day and three-fourths of the remainder evaporates on the second day, the fractional part of the original contents remaining at the close of the second day is

- (A) $\frac{5}{12}$
- (B) $\frac{7}{12}$
- (C) $\frac{1}{6}$
- (D) $\frac{1}{2}$
- (E) $2\frac{1}{2}$.

25. A snapshot measures $2\frac{1}{2}$ inches by $1\frac{7}{8}$ inches. It is to be enlarged so that the longer dimension will be 4 inches. The length of the enlarged shorter dimension will be

- (A) $2\frac{1}{2}$ inches
- (B) 3 inches
- (C) $3\frac{3}{8}$ inches
- (D) $3\frac{1}{8}$ inches
- (E) none of these.

26. From a piece of tin in the shape of a square 6 inches on a side, the largest possible circle is cut out. Of the

following, the ratio of the area of the circle to the area of the original square is closest in value to

- (A) $\frac{4}{5}$
- (B) $\frac{2}{3}$
- (C) $\frac{3}{5}$
- (D) $\frac{1}{2}$
- (E) $\frac{3}{4}$.

27. The approximate distance, s , in feet that an object falls in t seconds when dropped from a height is obtained by use of the formula $s=16 t^2$. In 8 seconds the object will fall

- (A) 15,384 feet
- (B) 1,024 feet
- (C) 256 feet
- (D) 150 feet
- (E) none of these.

28. A pound of water is evaporated from 6 pounds of sea water containing 4% salt. The percentage of salt in the remaining solution is

- (A) $3\frac{1}{3}$
- (B) 4
- (C) $4\frac{4}{5}$
- (D) 5
- (E) none of these.

29. The speed of an object moving at 45 miles per hour is decreased by 22 feet per second. The reduced speed in miles per hour is

- (A) 36
- (B) 44
- (C) 23
- (D) 28
- (E) 30.

30. The size of a parcel post package is limited to a maximum of a combined length plus girth (perimeter of cross-section) of 72 inches. The volume in cubic inches of the maximum package allowed having a length of 36 inches and a square cross-section is

- (A) 1296
- (B) 648
- (C) 1958
- (D) 2420
- (E) 2916.

Correct Answers For The Foregoing Questions

(Check your answers with these that we provide. You should find considerable correspondence between them. If not, you'd better go back and find out why. On the next page we have provided concise clarifications of basic points behind the key answers. Please go over them carefully because they may be quite useful in helping you pick up extra points on the exam.)

Part I: Number Series

1. B	14. C
2. C	15. A
3. D	16. C
4. E	17. E
5. A	18. D
6. D	19. C
7. B	20. A
8. A	21. D
9. B	22. B
10. A	23. A
11. B	24. A
12. A	25. C
13. B	

Part II: Figure Analogies

1. 1	13. 1	25. 5
2. 4	14. 1	26. 5
3. 3	15. 2	27. 1
4. 2	16. 5	28. 2
5. 1	17. 3	29. 2
6. 1	18. 3	30. 4
7. 2	19. 3	31. 1
8. 2	20. 1	32. 4
9. 1	21. 1	33. 3
10. 1	22. 1	34. 3
11. 3	23. 2	35. 3
12. 2	24. 3	

SCORE 1

.....%
NO. CORRECT ÷

NO. OF QUESTIONS
ON THIS TEST

SCORE 2

.....%
NO. CORRECT ÷

NO. OF QUESTIONS
ON THIS TEST

SCORE 3

.....%
NO. CORRECT ÷

NO. OF QUESTIONS
ON THIS TEST

Part III: Arithmetic Reasoning

1. A	16. C
2. C	17. B
3. B	18. C
4. C	19. A
5. C	20. C
6. B	21. D
7. E	22. B
8. A	23. B
9. A	24. C
10. B	25. B
11. A	26. A
12. B	27. B
13. D	28. C
14. A	29. E
15. A	30. E

*NOW, CHECK YOUR METHODS
WITH OUR SIMPLIFIED PROBLEM SOLUTIONS,
WHICH FOLLOW DIRECTLY*

Respondent's Exhibit No. 18**PART THREE: MATHEMATICAL REASONING**

Directions: Instead of numbers, letters and symbols are, for the most part, used in the following problems. Perform the mathematical operation required in order to arrive at the correct answer.

Example: A man's salary was X dollars an hour for a 40-hour week and $2X$ dollars for each hour over 40 hours. What was his salary for the week if he worked 46 hours?
 (A) $42X$ (B) $48X$ (C) $52X$ (D) $56X$.

The correct answer is (C) $52X$.

1. An automobile travels m miles in h hours. At this rate, how far will it travel in x hours?

(A) $\frac{m}{x}$

(B) $\frac{mx}{h}$

(C) $x = \frac{m}{h}$

(D) $\frac{mh}{x}$

2. If there is a total of J garbage trucks in operation in a city, covering a total street mileage of N miles at an average speed of E miles per hour, we can find the average street mileage per truck from the above data, without considering

(A) the total number of cars
 (B) the total street mileage
 (C) the average speed
 (D) any of these values.

3. Clerk A sorts B letters per hour, clerk C sorts D letters per hour. The D letters which clerk C sorts exceed those which clerk A sorts by 10 letters per hour. Measured in number sorted per 8-hour day, clerk C exceeds A by

(A) $D - B \times 10$
 (B) $(D - B) \times 8$
 (C) $D + C - A + B$
 (D) $C + D - A + B$.

4. The annual salary of a machinist is R dollars more than that of his assistant. His assistant earns V dollars annually. The amount in monthly salary, by which the machinist exceeds his assistant, is given by

(A) $\frac{R}{12}$

(B) $\frac{RV}{12}$

(C) $R - V$
 (D) $12V - R$.

5. If $d = m - \frac{50}{m}$, and m is a positive number

which increases in value, d

(A) increases in value
 (B) decreases in value
 (C) remains unchanged
 (D) fluctuates up and down in value.

6. If x is less than 10, and y is less than 5, it follows that

(A) x is greater than y
 (B) $x - y = 5$
 (C) $x = 2y$
 (D) $x + y$ is less than 15.

7. A family of 5 has two employed members earning L dollars a month. The family receives a total semi-monthly

relief allowance of M dollars. If the rent allowance is N dollars, and the amount spent for food is twice that for rent, the amount spent monthly for all items other than food and rent is

(A) $L + 2M - 3N$

(B) $\frac{N + L + M}{5}$

(C) $L + M - 2N$
5

(D) $\frac{5}{N + L + M}$

8. If psychological studies of college students show K per cent to be emotionally unstable, the number of college students not emotionally unstable per one hundred college students is

(A) 100 minus K

(B) 100 times (K minus)

(C) K minus 1

(D) 1 minus K.

9. If the same quantity is added to both the numerator and the denominator of a proper fraction, the value of the new fraction is

(A) the same as the value of the original fraction

(B) one greater than the value of the original fraction

(C) less than the value of the original fraction

(D) greater than the value of the original fraction.

10. A is older than B. With the passage of time

(A) the ratio of the ages of A and B remains unchanged

(B) the ratio of the ages of A and B increases

(C) the ratio of the ages of A and B decreases

(D) the difference in their ages varies.

11. Your office wishes to purchase an adding machine. Company X offers you a standard model, less discounts of

10% and 5%. Company Y offers you the same model at the same list price, less discounts of 5% and 10%. Of the two plans, the total discount given by Company X, compared to that given by Company Y, is

(A) much larger

(B) slightly larger

(C) equal

(D) slightly less.

12. Suppose that the loss of water pressure in a hose due to friction is uniformly L pounds per square inch for every foot of hose. Of the following, the best estimate of the total loss in terms of pressure per square inch in a hose H feet long is

(A) H plus L pounds

(B) H times L pounds

(C) H divided by L pounds

(D) L divided by H pounds.

13. Suppose that R persons were rescued from burning buildings by firemen in a given year. Suppose also that P persons perished in burning buildings in that year. If R is less than S but greater than T and P is less than both M and N, it may safely be concluded that

(A) the sum of R and T is greater than S

(B) the sum of M and N is greater than P

(C) R is between M and N times as great as P

(D) R exceeds P to an indeterminate degree lying somewhere between S and N.

14. The sum of two even numbers and one odd number

(A) is always odd

(B) is always even

(C) may be odd or even

(D) is never divisible by another number.

15. If n represents a certain number, express in terms of n a number that is 4 more than 5 times n .

- (A) $5n + 4$
- (B) $4n + 5$
- (C) 4 times n
- (D) 5 times n .

16. Assume that the average time required for a department vehicle to reach the scene of an emergency is M minutes. Solely on the basis of this fact, the one of the following which is the most reasonable inference is that in

- (A) no case did a vehicle reach the scene of an emergency in less than M minutes
- (B) no case did a vehicle reach the scene of an emergency in more than M minutes
- (C) every case a vehicle reached the scene of an emergency in exactly M minutes
- (D) some cases vehicles reached the scene of an emergency after M minutes had elapsed.

17. In a certain year, fires occurred in K "Type Z" multiple dwellings. It is known that L per cent of the M multiple dwellings in New York City are of "Type Z". The fraction of "Type Z" multiple dwellings in which fires occurred during that year was

- (A) K divided by L times M
- (B) L times M divided by 100 K
- (C) K divided by the quantity 100 times L times M
- (D) 100 K divided by the quantity L times M .

18. When an arithmetical fraction is squared, the result in all cases is

- (A) greater than the original fraction
- (B) less than the original fraction
- (C) equal to the original fraction
- (D) none of these.

19. If x is greater than y , and x is greater than z , it follows that

- (A) the average of y and z is less than x
- (B) y is greater than z
- (C) x is less than $y + z$
- (D) $y = z$.

20. If A does a job in x days, and B does the same job in y days, what part of the job will they do in one day if they work together?

- (A) the entire job

$$(B) \frac{x}{2} + \frac{y}{2}$$

$$(C) \frac{x}{1} + \frac{y}{1}$$

$$(D) \frac{1}{x} + \frac{1}{y}$$

21. A certain highway intersection has had A accidents over a ten-year period, resulting in B deaths. What is the yearly average death rate for the intersection?

- (A) $A + B - 10$

$$(B) \frac{B}{10}$$

$$(C) 10 - \frac{A}{B}$$

$$(D) \frac{A}{10}$$

22. A typist can address approximately R envelopes in a 7-hour day. A list containing S addresses is submitted with a request that all envelopes be typed within T hours. The number of typists needed to complete this task would be

- (A) $\frac{7RS}{T}$
- (B) $\frac{S}{7RT}$
- (C) $\frac{R}{7ST}$
- (D) $\frac{S}{R \times T}$

—
7

23. Employee X earns \$L per year. Employee Y earns \$R less per month. Both earn yearly increments of \$T up to S years, the excess of Clerk X's earnings over Clerk Y's will be

- (A) $12PR$
- (B) $12P(L \text{ minus } R)$
- (C) $12PT(L \text{ plus } R)$
- (D) $P(T \text{ plus } L \text{ minus } R)$.

24. Suppose that the average number of violations per day during a period of P days is M. The total number of violations during the period of P days is expressed as

- (A) M
- (B) P
- (C) the product of P and M
- (D) the sum of M and P.

25. If an engine pumps G gallons of water per minute, then the number of gallons pumped in half an hour may be found by

- (A) taking one-half of G
- (B) dividing 60 by G
- (C) multiplying G by 60 and then dividing the product by two
- (D) dividing 30 by G.

Respondent's Exhibit No. 19

**Test Items Similar to Those Used
in EPSAT Part III Physical Science Comprehension**

1. The venturi measures pressure directly.
2. Water has its greatest density at a temperature of approximately 5°C.
3. Particulate matter is typically removed from the center of a centrifuge.
4. Carbon tetrachloride extinguishes fires by chemically combining with oxygen.
5. Transpiration cooling is commonly referred to as "sweat" cooling.
6. Dry ice is solidified carbon monoxide.
7. A thermostat can be constructed using a liquid which expands markedly when heated.
8. The hydraulic press uses a small force over a large surface to cause a large force over a small surface.
9. A typical piston pump can be used to draw water up from a depth of more than 60 feet.
10. When air is compressed it becomes cooler in the process.
11. A bell suspended outside one space satellite if rung could very easily be heard in a nearby space satellite.
12. Decreasing pressure will lower the boiling point of a liquid.
13. A clock without a compensated pendulum will run "fast" in cold weather.
14. Anode in an electron tube supplies an excess of electrons when heated.
15. To avoid picking up trapped water the inlet to a gasoline fuel pump is placed as closely as possible to the bottom of the gasoline tank.
16. It requires less energy to launch a satellite into orbit in an over the poles direction than around the equator direction.

17. Micro wave radio beams tend to follow the earth's curvature.
18. Ozone is an alternative atomic form of hydrogen.
19. Radio speakers work by alternately expanding and contracting the air around them.
20. In order to function an electrical transformer must have two windings.
21. The doppler effect can be used for measuring instruments.
22. Stroboscopes are used to measure rotational velocity.
23. Precision telescopes are likely to utilize front surface mirrors.
24. Properties of optical lenses are determined using the laws of diffraction.
25. Farsightedness in humans is corrected by using divergent eyeglass lenses.
26. The electron microscope has less resolving power than a light microscope.
27. Resonance is found in nearly all fields of physical science.
28. Ultrasonic frequencies are below the audible limit.
29. A suction cup holds to a surface due to the vacuum formed between cup and surface adhered to.
30. Transfer of heat by conduction occurs in all physical forms of matter.
31. Lightning arresters with blunt ends are more effective than sharp pointed ones.
32. Significant amounts of heat can be removed from a fluid whose temperature is 10°C.
33. In an electric toaster heat is transferred mainly by conduction.
34. Glass is a good conductor of electric current.
35. A milligram is equal to 100 grams.
36. Electrons moving in space are not influenced by magnetic fields through which they pass.
37. A ship weighs more when floating in fresh water than it does in salt water.

38. The rocket engine moves forward because of the thrust of the rapidly moving gasses exiting from its nozzle.
39. The magnetic axis of the earth coincides with its rotational axis.
40. When an electrical charge is passed through a gas three types of ions are produced.

Respondent's Exhibit No. 20¹**ETHICAL STANDARDS OF PSYCHOLOGISTS**

The psychologist believes in the dignity and worth of the individual human being. He is committed to increasing man's understanding of himself and others. While pursuing this endeavor, he protects the welfare of any person who may seek his service or of any subject, human or animal, that may be the object of his study. He does not use his professional position or relationships, nor does he knowingly permit his own services to be used by others, for purposes inconsistent with these values. While demanding for himself freedom of inquiry and communication, he accepts the responsibility this freedom confers; for competence where he claims it, for objectivity in the report of his findings, and for consideration of the best interests of his colleagues and of society.

SPECIFIC PRINCIPLES

Principle 1. Responsibility. The psychologist,² committed to increasing man's understanding of man, places high value on objectivity and integrity, and maintains the highest standards in the services he offers.

- a. As a scientist, the psychologist believes that society will be best served when he investigates where his judgment indicates investigation is needed; he plans his research in such a way as to minimize the possibility that his findings will be misleading; and he publishes full reports of his work, never discarding

¹ Copyrighted by the American Psychological Association, Inc., January 1963. Reprinted (and edited from the *American Psychologist*, January 1963, and as amended by the APA Council of Representatives in September 1965 and December 1972.

² A student of psychology who assumes the role of psychologist shall be considered a psychologist for the purpose of this code of ethics.

without explanation data which may modify the interpretation of results.

- b. As a teacher, the psychologist recognizes his primary obligation to help others acquire knowledge and skill, and to maintain high standards of scholarship.
- c. As a practitioner, the psychologist knows that he bears a heavy social responsibility because his work may touch intimately the lives of others.

Principle 2. Competence. The maintenance of high standards of professional competence is a responsibility shared by all psychologists, in the interest of the public and of the profession as a whole.

- a. Psychologists discourage the practice of psychology by unqualified persons and assist the public in identifying psychologists competent to give dependable professional service. When a psychologist or a person identifying himself as a psychologist violates ethical standards, psychologists who know firsthand of such activities attempt to rectify the situation. When such a situation cannot be dealt with informally, it is called to the attention of the appropriate local, state, or national committee on professional ethics, standards, and practices.
- b. Psychologists regarded as qualified for independent practice are those who (a) have been awarded a Diploma by the American Board of Professional Psychology, or (b) have been licensed or certified by state examining boards, or (c) have been certified by voluntary boards established by state psychological associations. Psychologists who do not yet meet the qualifications recognized for independent practice should gain experience under qualified supervision.

- c. The psychologist recognizes the boundaries of his competence and the limitations of his techniques and does not offer services or use techniques that fail to meet professional standards in particular fields. The psychologist who engages in practice assists his client in obtaining professional help for all important aspects of his problem that fall outside the boundaries of his own competence. This principle requires, for example, that provision be made for the diagnosis and treatment of relevant medical problems and for referral to or consultation with other specialists.
- d. The psychologist in clinical work recognizes that his effectiveness depends in good part upon his ability to maintain sound interpersonal relations, that temporary or more enduring aberrations in his own personality may interfere with this ability or distort his appraisals of others. There he refrains from undertaking any activity in which his personal problems are likely to result in inferior professional services or harm to a client; or if he is already engaged in such an activity when he becomes aware of his personal problems, he seeks competent professional assistance to determine whether he should continue or terminate his services to his client.

Principle 3. Moral and Legal Standards. The psychologist in the practice of his profession shows sensible regard for the social codes and moral expectations of the community in which he works, recognizing that violations of accepted moral and legal standards on his part may involve his clients, students, or colleagues in damaging personal conflicts, and impugn his own name and the reputation of his profession.

Principle 4. Misrepresentation. The psychologist avoids misrepresentation of his own professional qualifications,

affiliations, and purposes, and those of the institutions and organizations with which he is associated.

- a. A psychologist does not claim either directly or by implication professional qualifications that differ from his actual qualifications, nor does he misrepresent his affiliation with any institution, organization, or individual, nor lead others to assume he has affiliations that he does not have. The psychologist is responsible for correcting others who misrepresent his professional qualifications or affiliations.
- b. The psychologist does not misrepresent an institution or organization with which he is affiliated by ascribing to it characteristics that it does not have.
- c. A psychologist does not use his affiliation with the American Psychological Association or its Divisions for purposes that are not consonant with the stated purposes of the Association.
- d. A psychologist does not associate himself with or permit his name to be used in connection with any services or products in such a way as to misrepresent them, the degree of his responsibility for them, or the nature of his affiliation.

Principle 5. Public Statements. Modesty, scientific caution, and due regard for the limits of present knowledge characterize all statements of psychologists who supply information to the public, either directly or indirectly.

- a. Psychologists who interpret the science of psychology or the services of psychologists to clients or to the general public have an obligation to report fairly and accurately. Exaggeration, sensationalism, superficiality, and other kinds of misrepresentations are avoided.
- b. When information about psychological procedures and techniques is given, care is taken to indicate that

they should be used only by persons adequately trained in their use.

- c. A psychologist who engages in radio or television activities does not participate in commercial announcements recommending purchase or use of a product.

Principle 6. Confidentiality. Safeguarding information about an individual that has been obtained by the psychologist in the course of his teaching, practice, or investigation is a primary obligation of the psychologist. Such information is not communicated to others unless certain important conditions are met.

- a. Information received in confidence is revealed only after most careful deliberation and when there is clear and imminent danger to an individual or to society, and then only to appropriate professional workers or public authorities.
- b. Information obtained in clinical or consulting relationships, or evaluative data concerning children, students, employees, and others are discussed only for professional purposes and only with persons clearly concerned with the case. Written and oral reports should present only data germane to the purposes of the evaluation, every effort should be made to avoid undue invasion of privacy.
- c. Clinical and other materials are used in classroom teaching and writing only when the identity of the persons involved is adequately disguised.
- d. The confidentiality of professional communications about individuals is maintained. Only when the originator and other persons involved give their express permission is a confidential professional communication shown to the individual concerned. The psychol-

ogist is responsible for informing the client of the limits of the confidentiality.

- e. Only after explicit permission has been granted is the identity of research subjects published. When data have been published without permission for identification, the psychologist assumes responsibility for adequately disguising their sources.
- f. The psychologist makes provisions for the maintenance of confidentiality in the preservation and ultimate disposition of confidential records.

Principle 7. Client Welfare. The psychologist respects the integrity and protects the welfare of the person or group with whom he is working.

- a. The psychologist in industry, education, and other situations in which conflicts of interest may arise among various parties, as between management and labor, or between the client and employer of the psychologist, defines for himself the nature and direction of his loyalties and responsibilities and keeps all parties concerned informed of these commitments.
- b. When there is a conflict among professional workers, the psychologist is concerned primarily with the welfare of any client involved and only secondarily with the interest of his own professional group.
- c. The psychologist attempts to terminate a clinical or consulting relationship when it is reasonably clear to the psychologist that the client is not benefiting from it.
- d. The psychologist who asks that an individual reveal personal information in the course of interviewing, testing, or evaluation, or who allows such information to be divulged to him, does so only after making certain that the responsible person is fully aware of

the purposes of the interview, testing, or evaluation and of the ways in which the information may be used.

- e. In cases involving referral, the responsibility of the psychologist for the welfare of the client continues until this responsibility is assumed by the professional person to whom the client is referred or until the relationship with the psychologist making the referral has been terminated by mutual agreement. In situations where referral, consultation, or other changes in the conditions of the treatment are indicated and the client refuses referral, the psychologist carefully weighs the possible harm to the client, to himself, and to his profession that might ensue from continuing the relationship.
- f. The psychologist who requires the taking of psychological tests for didactic, classification, or research purposes protects the examinees by insuring that the tests and test results are used in a professional manner.
- g. When potentially disturbing subject matter is presented to students, it is discussed objectively, and efforts are made to handle constructively any difficulties that arise.
- h. Care must be taken to insure an appropriate setting for clinical work to protect both client and psychologist from actual or imputed harm and the profession from censure.
- i. In the use of accepted drugs for therapeutic purposes special care needs to be exercised by the psychologist to assure himself that the collaborating physician provides suitable safeguards for the client.

Principle 8. Client Relationship. The psychologist informs his prospective client of the important aspects of the potential relationship that might affect the client's decision to enter the relationship.

- a. Aspects of the relationship likely to affect the client's decision include recording of an interview, the use of interview material for training purposes, and observation of an interview by other persons.
- b. When the client is not competent to evaluate the situation (as in the case of a child), the person responsible for the client is informed of the circumstances which may influence the relationship.
- c. The psychologist does not normally enter into a professional relationship with members of his own family, intimate friends, close associates, or others whose welfare might be jeopardized by such a dual relationship.

Principle 9. Impersonal Services. Psychological services for the purpose of diagnosis, treatment, or personalized advice are provided only in the context of a professional relationship, and are not given by means of public lectures or demonstrations, newspaper or magazine articles, radio or television programs, mail, or similar media.

- a. The preparation of personnel reports and recommendations based on test data secured solely by mail is unethical unless such appraisals are an integral part of a continuing client relationship with a company, as a result of which the consulting psychologist has intimate knowledge of the client's personnel situation and can be assured thereby that his written appraisals will be adequate to the purpose and will be properly interpreted by the client. These reports must not be embellished with such detailed analyses of the subject's personality traits as would be appropriate only after intensive interviews with the sub-

ject. The reports must not make specific recommendations as to employment or placement of the subject which go beyond the psychologist's knowledge of the job requirements of the company. The reports must not purport to eliminate the company's need to carry on such other regular employment or personnel practices as appraisal of the work history, checking of references, past performance in the company.

Principle 10. Announcement of Services. A psychologist adheres to professional rather than commercial standards in making known his availability for professional services.

- a. A psychologist does not directly solicit clients for individual diagnosis or therapy.
- b. Individual listings in telephone directories are limited to name, highest relevant degree, certification status, address, and telephone number. They may also include identification in a few words of the psychologist's major areas of practice: for example, child therapy, personnel selection, industrial psychology. Agency listings are equally modest.
- c. Announcements of individual private practice are limited to a simple statement of the name, highest relevant degree, certification or diplomate status, address, telephone number, office hours, and a brief explanation of the types of services rendered. Announcements of agencies may list names of staff members with their qualifications. They conform in other particulars with the same standards as individual announcements, making certain that the true nature of the organization is apparent.
- d. A psychologist or agency announcing nonclinical professional services may use brochures that are descriptive of services rendered but not evaluative. They may be sent to professional persons, schools, business

firms, government agencies, and other similar organizations.

- e. The use in a brochure of "testimonials from satisfied users" is unacceptable. The offer of a free trial of services is unacceptable if it operates to misrepresent in any way the nature or the efficacy of the services rendered by the psychologist. Claims that a psychologist has unique skills or unique devices not available to others in the profession are made only if the special efficacy of these unique skills or devices has been demonstrated by scientifically acceptable evidence.
- f. The psychologist must not encourage (nor, within his power, even allow) a client to have exaggerated ideas as to the efficacy of services rendered. Claims made to clients about the efficacy of his services must not go beyond those which the psychologist would be willing to subject to professional scrutiny through publishing his results and his claims in a professional journal.

Principle 11. Interprofessional Relations. A psychologist acts with integrity in regard to colleagues in psychology and in other professions.

- a. Each member of the Association cooperates with the duly constituted Committee on Scientific and Professional Ethics and Conduct in the performance of its duties by responding to inquiries with reasonable promptness and completeness. A member taking longer than 30 days to respond to such inquiries shall have the burden of demonstrating that he acted with "reasonable promptness."
- b. A psychologist does not normally offer professional services to a person receiving psychological assistance from another professional worker except by agreement with the other worker or after the termina-

nation of the client's relationship with the other professional worker.

- c. The welfare of clients and colleagues requires that psychologists in joint practice or corporate activities make an orderly and explicit arrangement regarding the conditions of their association and its possible termination. Psychologists who serve as employers of other psychologists have an obligation to make similar appropriate arrangements.

Principle 12. Remuneration. Financial arrangements in professional practice are in accord with professional standards that safeguard the best interest of the client and the profession.

- a. In establishing rates for professional services, the psychologist considers carefully both the ability of the client to meet the financial burden and the charges made by other professional persons engaged in comparable work. He is willing to contribute a portion of his services to work for which he receives little or no financial return.
- b. No commission or rebate or any other form of remuneration is given or received for referral of clients for professional services.
- c. The psychologist in clinical or counseling practice does not use his relationships with clients to promote, for personal gain or the profit of an agency, commercial enterprises of any kind.
- d. A psychologist does not accept a private fee or any other form of remuneration for professional work with a person who is entitled to his services through an institution or agency. The policies of a particular agency may make explicit provision for private work with its clients by members of its staff, and in such instances the client must be fully apprised of all policies affecting him.

Principle 13. Test Security. Psychological tests and other assessment devices, the value of which depends in part on the naivete of the subject, are not reproduced or described in popular publications in ways that might invalidate the techniques. Access to such devices is limited to persons with professional interests who will safeguard their use.

- a. Sample items made up to resemble those of tests being discussed may be reproduced in popular articles and elsewhere, but scorable tests and actual test items are not reproduced except in professional publications.
- b. The psychologist is responsible for the control of psychological tests and other devices and procedures used for instruction when their value might be damaged by revealing to the general public their specific contents or underlying principles.

Principle 14. Test Interpretation. Test scores, like test materials, are released only to persons who are qualified to interpret and use them properly.

- a. Materials for reporting test scores to parents, or which are designed for self-appraisal purposes in schools, social agencies, or industry are closely supervised by qualified psychologists or counselors with provisions for referring and counseling individuals when needed.
- b. Test results or other assessment data used for evaluation or classification are communicated to employers, relatives, or other appropriate persons in such a manner as to guard against misinterpretation or misuse. In the usual case, an interpretation of the test result rather than the score is communicated.
- c. When test results are communicated directly to parents and students, they are accompanied by adequate interpretive aids or advice.

Principle 15. Test Publication. Psychological tests are offered for commercial publication only to publishers who present their tests in a professional way and distribute them only to qualified users.

- a. A test manual, technical handbook, or other suitable report on the test is provided which describes the method of constructing and standardizing the test, and summarizes the validation research.
- b. The populations for which the test has been developed and the purposes for which it is recommended are stated in the manual. Limitations upon the test's dependability, and aspects of its validity on which research is lacking or incomplete, are clearly stated. In particular, the manual contains a warning regarding interpretations likely to be made which have not yet been substantiated by research.
- c. The catalog and manual indicate the training or professional qualifications required for sound interpretation of the test.

The test manual and supporting documents take into account the principles enunciated in the *Standards for Educational and Psychological Tests and Manuals*.

- e. Test advertisements are factual and descriptive rather than emotional and persuasive.

Principle 16. Research Precautions. The psychologist assumes obligations for the welfare of his research subjects, both animal and human.

The decision to undertake research should rest upon a considered judgment by the individual psychologist about how best to contribute to psychological science and to human welfare. The responsible psychologist weighs alternative directions in which personal energies and resources might be invested. Having made the decision to conduct re-

search, psychologists must carry out their investigations with respect for the people who participate and with concern for their dignity and welfare. The Principles that follow make explicit the investigator's ethical responsibilities toward participants over the course of research, from the initial decision to pursue a study to the steps necessary to protect the confidentiality of research data. These Principles should be interpreted in terms of the contexts provided in the complete document³ offered as a supplement to these Principles.

- a. In planning a study the investigator has the personal responsibility to make a careful evaluation of its ethical acceptability, taking into account these Principles for research with human beings. To the extent that this appraisal, weighing scientific and humane values, suggests a deviation from any Principle, the investigator incurs an increasingly serious obligation to seek ethical advice and to observe more stringent safeguards to protect the rights of the human research participants.
- b. Responsibility for the establishment and maintenance of acceptable ethical practice in research always remains with the individual investigator. The investigator is also responsible for the ethical treatment of research participants by collaborators, assistants, students, and employees, all of whom, however, incur parallel obligations.
- c. Ethical practice requires the investigator to inform the participant of all features of the research that reasonably might be expected to influence willingness to participate, and to explain all other aspects of the

research about which the participant inquires. Failure to make full disclosure gives added emphasis to the investigator's abiding responsibility to protect the welfare and dignity of the research participant.

- d. Openness and honesty are essential characteristics of the relationship between investigator and research participant. When the methodological requirements of a study necessitate concealment or deception, the investigator is required to ensure the participant's understanding of the reasons for this action and to restore the quality of the relationship with the investigator.
- e. Ethical practice requires the investigator to inform the participant of all features of the research that reasonably might be expected to influence willingness to participate, and to explain all other aspects of the research about which the participant inquires. Failure to make full disclosure gives added emphasis to the investigator's abiding responsibility to protect the participant's dignity and welfare.
- f. Ethically acceptable research begins with the establishment of a clear and fair agreement between the investigator and the research participant that clarifies the responsibilities of each. The investigator has the obligations to honor all promises and commitments included in that agreement.
- g. The ethical investigator protects participants from physical and mental discomfort, harm and danger. If the risk of such consequences exists, the investigator is required to inform the participant of that fact, secure consent before proceeding, and take all possible measures to minimize distress. A research procedure may not be used if it is likely to cause serious and lasting harm to participants.

³ *Ethical Principles in the Conduct of Research with Human Participants*, available upon request from the American Psychological Association.

- h. After the data are collected, ethical practice requires the investigator to provide the participant with a full clarification of the nature of the study and to remove any misconceptions that may have arisen. Where scientific or humane values justify delaying or withholding information, the investigator acquires a special responsibility to assure that there are no damaging consequences for the participant.
- i. Where research procedures may result in undesirable consequences for the participant, the investigator has the responsibility to detect and remove or correct these consequences, including, where relevant, long-term after effects.
- j. Information obtained about the research participants during the course of any investigation is confidential. When the possibility exists that others may obtain access to such information, ethical research practice requires that this possibility, together with the plans for protecting confidentiality, be explained to the participants as a part of the procedure for obtaining informed consent.
- k. A psychologist using animals in research adheres to the provisions of the Rules Regarding Animals, drawn up by the Committee on Precautions and Standards in Animal Experimentation and adopted by the American Psychological Association.
- l. Investigations of human subjects using experimental drugs (for exempt hallucinogenic, psychotomimetic, psychedelic or similar substances) should be conducted only in such settings as clinics, hospitals, or research facilities maintaining appropriate safeguards for the subjects.

Principle 17. Publication Credit. Credit is assigned to those who have contributed to a publication, in proportion to their contribution, and only to these.

- a. Major contributions of a professional character, made by several persons to a common project, are recognized by joint authorship. The experimenter or author who has made the principal contribution to a publication is identified as the first listed.
- b. Minor contributions of a professional character, extensive clerical or similar nonprofessional assistance, and other minor contributions are acknowledged in footnotes or in an introductory statement.
- c. Acknowledgement through specific citations is made for unpublished as well as published material that has directly influenced the research or writing.
- d. A psychologist who compiles and edits for publication the contributions of others publishes the symposium or report under the title of the committee or symposium, with his own name appearing as chairman or editor among those of the other contributors or committee members.

Principle 18. Responsibility toward Organization. A psychologist respects the rights and reputation of the institute or organization with which he is associated.

- a. Materials prepared by a psychologist as a part of his regular work under specific direction of his organization are the property of that organization. Such materials are released for use or publication by a psychologist in accordance with policies of authorization, assignment of credit, and related matters which have been established by his organization.
- b. Other material resulting incidentally from activity supported by any agency, and for which the psychologist rightly assumes individual responsibility, is published with disclaimer for any responsibility on the part of the supporting agency.

Principle 19. Promotional Activities. The psychologist associated with the development or promotion of psychological devices, books, or other products offered for commercial sale is responsible for ensuring that such devices, books, or products are presented in a professional and factual way.

- a. Claims regarding performance, benefits, or results are supported by scientifically acceptable evidence.
- b. The psychologist does not use professional journals for the commercial exploitation of psychological products, and the psychologist-editor guards against such misuse.
- c. The psychologist with a financial interest in the sale or use of a psychological product is sensitive to possible conflict of interest in his promotion of such products and avoids compromise of his professional responsibilities and objectives.

Respondent's Exhibit No. 21

INTRODUCTION TO TESTING

The tests that you will be taking today will last approximately —. Can everyone stay that long? *Pause.* Are there any parking problems for being here that length of time? *Pause.* Have you ever been tested for a job with this Company before? *Pause.*

Before we begin I would like to tell you a few things about the tests that you will be taking:

Length of test battery

Composition of battery (clerical, mechanical, etc.)

Timing of tests (some or all tests timed; can or can't tell the time limit on tests).

The tests you will be taking today will be just one factor in your evaluation. Other things such as other jobs that you have had in the past, courses that you've had in school —these things will also be taken into consideration. Your test scores will be compared to the test scores of employees who are working successfully on the job.

Your test scores are confidential. We will tell the Employment Department generally how you did on these tests and they may talk to Company departments about your being put on a certain job, but your test scores are kept only in our files.

Your test scores may be used again if they can help us review your qualifications for other jobs. These same scores may be used if you apply here for work again or you may be asked to take the same or similar tests. If you are employed by the Company these test results as well as others may be used in your consideration for other jobs within the Company.

Make yourself comfortable. There are ashtrays on the tables. You may smoke anytime you want to.

Are there any questions?

Respondent's Exhibit No. 22

ANSWER SHEET FOR ENGINEERING AND PHYSICAL SCIENCE APTITUDE TEST

NAME		LAST	FIRST	MIDDLE	NUMBER
DATE		AGE		SEX	
COURSE		INSTRUCTOR		SCHOOL	
Enroll last school Grade completed Bachelor Street 6 7 8 High School 1 2 3 4 5 6 7					
In the spaces below indicate the number of times that you have studied each of the following subjects:					

In the spaces below indicate the number of times that you have studied each of the following subjects:

		PART III SAMPLES	
		Physics	Elementary
IN HIGH SCHOOL	IN COLLEGE	Algebra	Plane Geometry
		1	1
		2	1
		3	1
		4	1
		5	1
		6	1
		7	1
		8	1
		9	1
		10	1
		11	1
		12	1
		13	1
		14	1
		15	1
		16	1
		17	1
		18	1
		19	1
		20	1
		21	1
		22	1
		23	1
		24	1
		25	1
		26	1
		27	1
		28	1
		29	1
		30	1
		31	1
		32	1
		33	1
		34	1
		35	1
		36	1
		37	1
		38	1

Part	Right	Wrong	Score
I			
II			
III			
IV	XXXX	XXXX	
V	XXXX	XXXX	
VI	XXXX	XXXX	
Total	XXXX	XXXX	
PERCENTILE			
NORMS USED			

MACHINE SCORING	
(A) PART I	(B) PART II
(C) PART III	(D) PART IV
(E) PART V	(F) PART VI

PERCENTILE

NORMS USED

PART I
SAMPLES

A B C D E

X Y

Y

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

PART II
SAMPLES

A B C D E

X Y

Y

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

PART III
SAMPLES

25

26

27

28

29

30

31

32

33

34

35

36

37

38

Part	Right	Wrong	Score
I			
II			
III			
IV	XXXX	XXXX	
V	XXXX	XXXX	
VI	XXXX	XXXX	
Total	XXXX	XXXX	
PERCENTILE			
NORMS USED			

(BACK)

A B C D E

X Y

Y

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

PART IV

A B C D E

X Y

Y

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

A B C D E

11 39

12 40

13 41

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REVISED MINNESOTA PAPER FORM BOARD TEST

PREPARED BY R. LINTAY AND W. H. QUADRA

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11	k
12	l
13	m
14	n
15	o
16	p

TEST PROBLEMS

1	a
2	b
3	c
4	d
5	e
6	f
7	g
8	h
9	i
10	j
11	k
12	l
13	m
14	n
15	o
16	p

BE SURE YOUR MARKS ARE HEAVY AND BLACK.

17	a
21	b
25	c
29	d
33	e
37	f
41	g
45	h

18	a
22	b
26	c
30	d
34	e
38	f
42	g
46	h

19	a
23	b
27	c
31	d
35	e
39	f
43	g
47	h

ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE.

49	a
53	b
57	c
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50	e
54	f
58	g
62	h

51	a
55	b
59	c
63	d
52	e
56	f
60	g
64	h

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1947 Edition

ENGINEERING AND PHYSICAL SCIENCE APTITUDE TEST

SIDE 1



**Order of the Supreme Court Granting the
Petition for Writ**

**SUPREME COURT OF THE UNITED STATES
OFFICE OF THE CLERK
WASHINGTON, D.C. 20543**

March 27, 1978

**John A. McGuinn, Esq.
Farmer, Shibley, McGuinn & Flood
1120 Connecticut Avenue, N.W.
Washington, D.C. 20036**

**Re: Detroit Edison Company v. National
Labor Relations Board, No. 77-968**

Dear Mr. McGuinn:

The Court today took the following action in the above case:

"The petition for a writ of certiorari is granted."

Enclosed are memorandums describing the time requirements and procedures under the Rules.

The additional docketing fee of \$50, Rule 52(a), is due and payable.

Very truly yours,

**MICHAEL RODAK, JR., Clerk
By /s/ June M. Hoffmann
(Miss) June M. Hoffmann
Assistant Clerk**

Enclosure